See Appendix 1.

This program requires a firm commitment to continuation and should be considered for direct operating budget support whether foreign contributions are forthcoming or not.

2. TB/Leprosy - The program as constructed is expensive; the unit cost per treated case is over 1,000 Afs. in 1356, with very high defaulter rates not included in the estimate. They should be estimated to more closely approximate the cost of effective treatment. See Appendix 2.

Improvements in cost effectiveness could be made by concentrating efforts on sputum microscopy diagnosis (rather than expensive radiologic techniques), case treatment follow-up, and integration of field programs with other institutions. Review of staffing proposals leads to the conclusion that they are too generous in number. In many cases scarce staff such as nurses could be replaced with more economically trained staff such as vaccinators.

The construction of special and separate regional and provincial TB centers seems of very doubtful value.

Supervisory and field training activities could be an integral part of the Rank 1 Zonal Training Centers. Special diagnostic and treatment activities would be better housed in the Regional Hospitals as the appropriate place for X-ray facilities and chest physicians to be efficiently focused.

Less than 20% of the operating expenses of the program for 1356 (see Appendix 2) are Ministry of Public Health money. Extreme care should be exercised in expanding a program that is

expensive per unit output and highly dependent on outside financing. As with malaria, the stability of long term foreign financing for operating costs is an unlikely prospect.

3. Malaria/Leishmaniasis - The low cost and the budget and staffing flexibility to respond to outbreaks and epidemiologic indicators form the base of the generally reasonable operation of the Malaria Program. In view of the declining willingness of foreign sources to sustain large percentages of recurrent operating budgets, even for effective programs such as malaria, the present cautious posture on control seems very realistic. See Appendix 3.

4. Water Supply - The near term work plan and budget appear to be in proportion to other Ministry of Public Health investments. The number of users of each type of system, however, seem optimistic. Periodic surveys of the actual use and state of repair of wells and pumps would be helpful in refining the measurement of output of the water supply program. Appendix 4 calculates the annual cost per recipient by depreciating the well cost over a ten year period, and adjusting for the number of broken pumps. Note also that only 212,500 rather than 300,000 new recipients are estimated to be served in 1356; both figures are below the annual population increase. An additional problem, recognized by the Water Supply Program, is that costs to reach additional recipients will begin to increase rapidly after the more concentrated centers of population have been served. It remains to be demonstrated whether the program can increase the percentage of Afghans with access to well water.

Maintenance is an important problem recognized by the program, and serious consideration should be given to incorporating at least the maintenance expenses into the Ministry of Public Health ordinary budget as a regular expense. Surveys (5,6) indicate that villagers often place a relatively low priority on water compared with other health needs. They are also unwilling to walk very far for a new water source. Both points indicate that a major health education campaign is required.

5. Basic Health Services - The core of the attempt to extend rural access to health services, BHS plans to reach 27% of the population by 1361. See Appendix 5. If adequately supported, this goal appears reasonable, but demonstrates at the same time the need for exploration of subcenters and Village Health Workers to extend health care access to the majority of rural Afghans beyond the reach of BHC's. Appendix 5 also sets out an illustrative long term financing and maintenance proposal for the VHW program, which suggests that the VHW activity may be self-supporting once underway.

Current developments suggest that commitments to required central management, field supervision, and in-service training activities are being kept by BHS. This leaves three main problems which affect the cost and output of BHS: manpower, drug supplies; and WFP. Manpower is of such importance that it is addressed separately in Section 7.1. Drugs and WFP can be discussed together here.

Once established, the costs of operating a BHC are largely fixed; if many people are provided health services, the unit

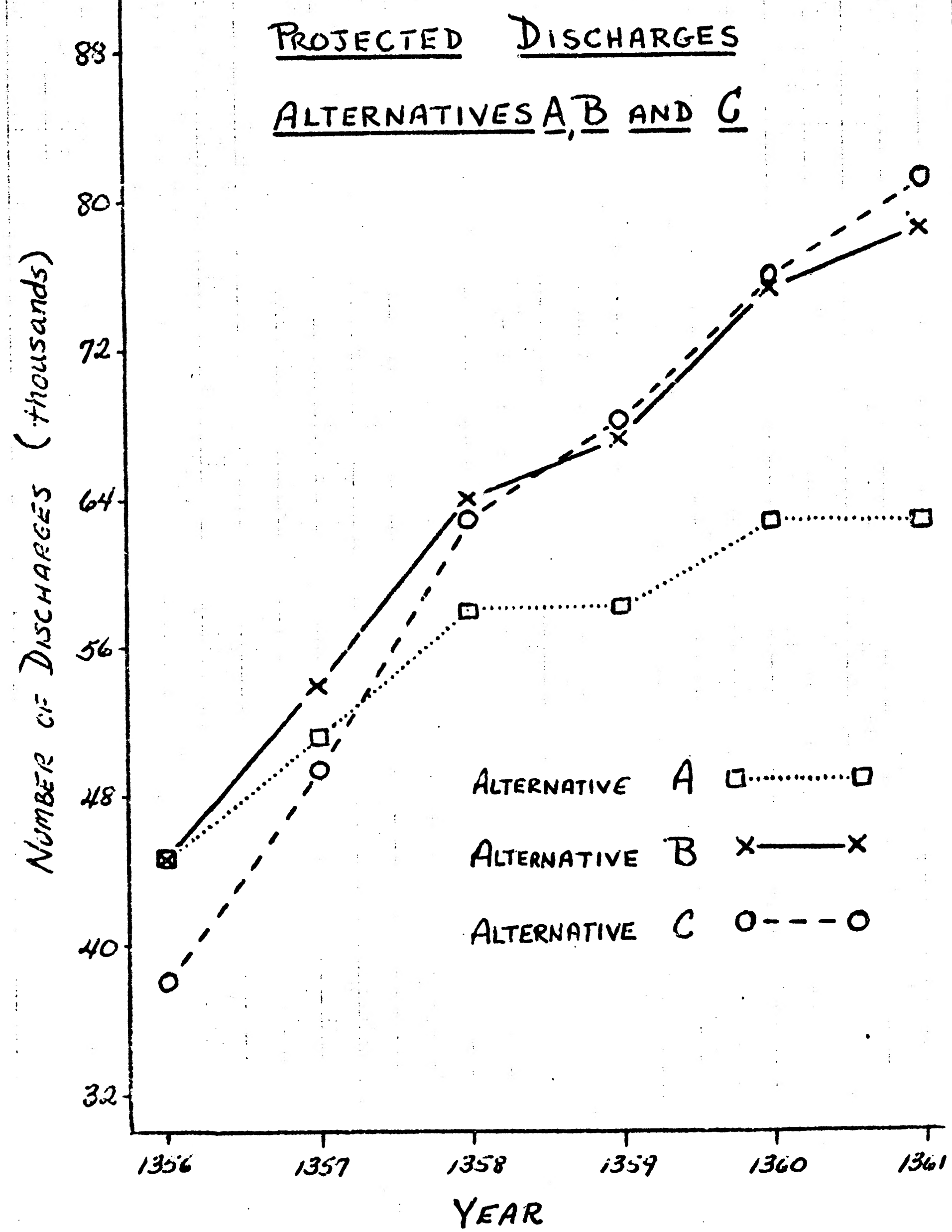
cost is low; if few people are served, the unit cost is high. The conflict arises in that the health and WFP programs compete; that is, BHCs supplying WFP inevitably become primarily food distribution points, not health centers. Health Services take second place to the time-consuming attraction of 100 Afs. of free food. In its present form, WFP distribution results in an unfortunate distortion of Basic Health Services activities and should be re-evaluated in light of these problems. The Parwan experience demonstrated that adequate drug availability, with training team support, resulted in a tripling of health center services with a corresponding decrease in unit costs.

6. Hospitals - Hospital problems are well known; poor quality of care and distribution of services, low utilization, and inadequate provision of specialized care. Solutions to these problems are less obvious.

Any forthright analysis of hospital costs must recognize that quality hospital services are necessarily associated with high costs. This does not mean that money ensures quality. It does mean that minimum standards of basic hospital care are associated with minimum costs, which are nevertheless quite high.

This analysis has focused attention on alternatives to contain the costs associated with expansion, for in Afghanistan as in almost every nation, the costs of hospital care tend to make up a larger share of health expenditure than can be justified by their outputs. Three alternatives have been considered to illustrate the resources required and potential outputs possible with different approaches to the important

Graph II



Graph III

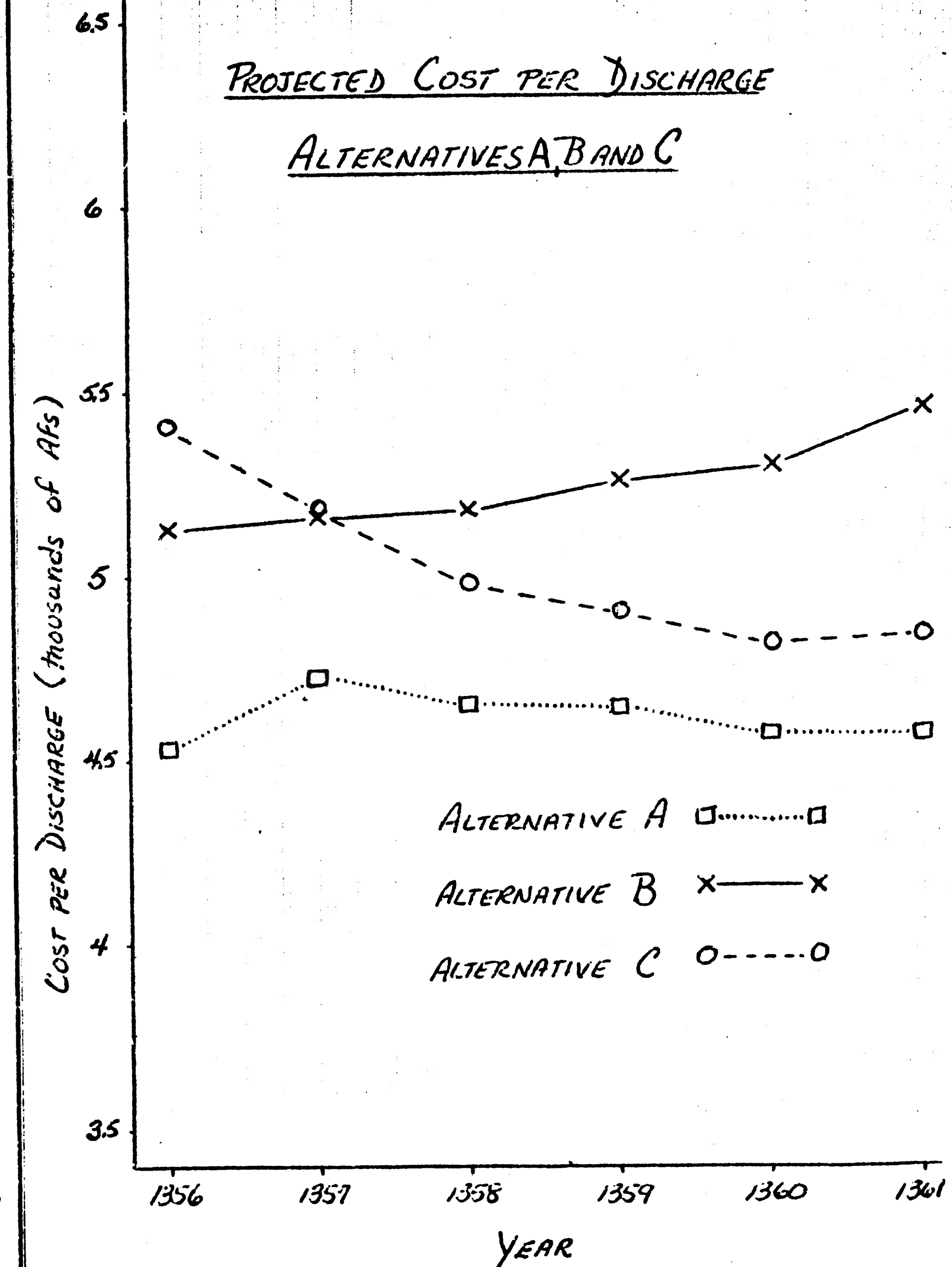


TABLE 5

COMPARISON OF ALTERNATIVE PLANS FOR HOSPITAL CAPACITY

ALTERNATIVE	1355	1356	1357	1358	1359	1360	1361
PROJECTED NUMBER OF BEDS							
Plan A	1946	2231	2571	2906	2921	3136	3136
Plan B	1946	2231	2571	2906	2921	3136	3136
Plan C	1731	1906	2246	2626	2626	2701	2701
ANTICIPATED COST PER BED (Including Foreign Aid) (Afghanis)							
Plan A	91,642	90,672	94,469	93,096	92,877	91,462	91,462
Plan B	91,642	102,676	108,385	114,001	120,942	127,108	136,164
Plan C	94,365	108,296	113,980	119,407	127,626	134,959	145,126
PROJECTED MOPH BUDGET (Millions of Afs)							
Plan A	150	172	200	227	228	245	245
Plan B	150	197	232	283	305	351	379
Plan C	133	169	207	263	284	314	340

TABLE 6

COST/OUTPUT COMPARISON BETWEEN HOSPITAL PLAN ALTERNATIVES A, B AND C

Variable	Alter-native	1356	1357	1358	1359	1360	1361
Occupancy (%)	A	70	70	70	70	70	70
	B	70	71	72	73	74	75
(assumed)	C	70	73	76	79	82	85
Number of Discharges	A	44620	51420	58120	58420	62720	62720
	B	44620	53991	63932	67183	75264	78400
	C	38120	49412	63024	68276	75628	81030
Discharges per Bed	A	20	20	20	20	20	20
(assumed)	B	20	21	22	23	24	25
	C	20	22	24	26	28	30
Cost per Discharge (Afs)	A	4530	4720	4650	4640	4570	4570
	B	5130	5160	5180	5260	5300	5450
	C	5410	5180	4980	4910	4820	4840
Average Length of Stay (Days)	A	12.8	12.8	12.8	12.8	12.8	12.8
	B	12.8	12.3	11.9	11.6	11.3	11.0
	C	12.8	12.1	11.6	11.1	10.7	10.3

question of hospital expansion and improvement. All three alternatives expand substantially on present hospital capacity; they differ in speed of expansion, cost, quality and feasibility, both technical (qualified staff available to provide care) and administrative (sufficient central Ministry of Public Health management development to provide the supplies and necessary support).

Alternative (A) assumes full realization of present plans for expansion at current levels of cost and quality. Alternative (B) accepts present plans for expansion and includes extra expense to support increased quality and better utilization. Alternative (C) reduces the rate of expansion in bed capacity. It provides even more funds and personnel for the upgrading of quality and utilization. (See Appendix 6, Tables H1-H5.) It allows important alternative health service uses for some of the smallest hospitals.

Alternative A does nothing to correct the existing deficiencies. Alternative B is the most costly and is a compromise between the need to improve quality and perceived needs for more regional and provincial beds.

Alternative C is less costly than Alternative B. While the costs per bed are greater, the number of discharges is greater and the cost per discharge is less. (See Tables 5 and 6 and Graphs II and III.) By concentrating on development of large regional hospitals, Alternative C provides more efficient use of limited staff. Utilization and total number of patients served is highest, and the administrative burden is minimized

by decreasing the number of poorly utilized, expensive small hospitals that cannot provide adequate hospital care (see Table H6.) The small ten and twenty bed units cannot, of course, be abandoned. They represent an opportunity to convert poorly utilized facilities of uncertain quality rapidly into community health centers which still retain a few beds for emergency care such as rehydration and accidents, but concentrate more intensively on basic health services. They could also serve as nutrition education centers.

The details of Alternative C are set out in Appendix 6. This alternative is less demanding of manpower. As there will be critical shortages of nurses during the planning period (see Section 7 and Appendix 7) this manpower constraint is another compelling reason to commend this alternative. The analysis suggests that an approach similar to Alternative C is the most practical mix of resources to meet the need for hospital services.

However there may well be political and demographic reasons why these small, inefficient and under-utilized hospitals cannot be closed. The practical realities may then require selecting a plan closer to Alternative B. This should only be done with the full realization that such a decision commits limited resources in a sub-optimal manner.

At the same time the problem of inefficient, under-utilized small hospitals must be addressed. There is ample evidence that very low occupancy reflects poor quality of care. Recent experience in Khost confirms the belief that upgrading the quality

of staff and equipment immediately improves utilization. Similar upgrading can be accomplished in Zonal hospitals. Scarce resources will not allow this strategy to be followed in the smallest hospitals.

In these small hospitals two other realistic options should be considered: -

1) The Gereshk example, conversion to a Zonal training center, modifies the hospital to provide additional and cost-effective health services.

2) The high mortality among infants and children under five is largely due to a small number of diseases which are largely preventable, easy to treat and easy to diagnose. The staff of most other small hospitals should be given intensive in-service training perhaps with the help of CHI so that they can effectively cope with these conditions. Their new proficiency will soon be appreciated by the population they serve and hospital utilization will rise dramatically. At the same time these hospitals will continue to provide emergency care for adults.

An equitable system of hospital charges for those who can afford to pay would of course decrease the Ministry of Public Health contribution under any alternative selected.

7. General Issues

7.1 Manpower

Analysis of manpower requirements during the planning period shows serious deficiencies in numbers of nurses and sanitarians. There is an initial shortage of ANMs but if classes are full, supply catches up with demand in 1360. There is a shortage of adequately trained doctors and of laboratory technicians whose training is up to the standard required in the better hospitals. Competent hospital administrators, if they exist, are in short supply. Clearly, shortages of health manpower can frustrate plans for extending the coverage and quality of health services. For this reason manpower planning and training must receive priority attention in the Ministry of Public Health.

The methods and results of the analysis are shown in Appendix 7. They must be considered merely a tentative first estimate because of deficiences in the quality of source data. More accurate data should be gathered and new projections calculated.

An Institute of Health Manpower Development has been suggested as a possible solution to health manpower deficiencies. Such an institute would seem a costly and sluggish response to an urgent group of problems. The immediate need is for an analysis of manpower requirements and supply. Then appropriate influence must be applied to other Ministries and institutions now training health manpower, and to the relevant institutions in the Ministry of Public Health, so that personnel of appropriate quality are trained in sufficient numbers to meet

the Ministry of Public Health's needs.

Strategies must be developed to meet critical shortages of manpower in the short term. Nurses can be augmented in number by substitution; by creating a new category of "nurse assistant" or"practical nurse". Assistant nurses can be selected from the large pool of twelfth grade graduates and given an intensive short course in the most fundamental aspects of health sciences. This can be compressed into a twelve to eighteen month course, including in-service training. This category could later be phased out by offering assistant nurses additional training which would fully qualify them as nurses. (Even if the category seemed useful and worth retaining in the long term assistant nurses who prove worthy should be given such opportunity for additional training and professional advancement).

7.2 Quality of Care

The quality of care is more dependent upon quality of personnel than on any other variable. Nowhere is this more important than the quality of care provided by doctors. In number alone there is no present or projected shortage of doctors. But in terms of the needs of both Basic Health Services and hospitals, there are critical shortages of suitably qualified doctors.

In Basic Health Services there must be gradual extension and upgrading of training of doctors in the orientation program which prepares them for service in Basic Health Centers. This process has started. It must be refined and extended.

The Seven Year Plan desires to bring Afghan hospitals up to an

acceptable minimum standard of care. An essential element is an expanded program of post-graduate training. This is best provided in a few select Kabul hospitals which must be given additional qualified clinical teachers and other resources. The Jamhouriat and CHI experience provides a successful working model. The effort needs to be expanded in these and other Kabul hospitals to include other clinical specialities, together with paramedical services such as physiotherapy, laboratory technology and dispensing.

At the same time there must be similar in-service training in hospital management. The hospital system cannot be improved without a cadre of competent hospital managers.

The clinical teachers and senior administrators of these hospitals should collectively form the faculty responsible for organizing and providing this in-service training. At the same time there must be a concerted effort to improve the standards of equipment, maintenance, and cleanliness as well as the logistics of supply to all Afghan hospitals. They must be improved if trained staff, as they become available, are to provide quality of care.

7.3 Incentive Payment for Service

The system and scale of payment of hospital specialists and other senior professionals and administrators must be improved substantially if there is to be any real hope of improving the quality of care and the efficiency of hospitals. At present doctors are forced to supplement their meagre salaries

1. Introduction

The priorities of the Afghan National Health Plan 1355-61 are already focused on improving access to health services for infants, children, women and the labor force. The purpose of the financial analysis is to provide a method of relating the costs and productivity of various health service programs outlined in the plan. Scarce resources can then be better utilized to achieve plan objectives.

The Financial Analysis is organized in parallel with the ten programs in the Seven Year Plan. Particular attention has been devoted to the first six programs which provide services directly to the people. These programs--Immunization, TB/Leprosy, Malaria, Water Supply, Basic Health Services, Hospitals--consume the bulk of present and future resources and therefore require attempts at careful cost projections.

Cost projections in this analysis make no allowance for inflation. Five percent per year seems a reasonable estimate and, by way of example, such an inflation rate is included in one projection of hospital costs (Appendix 6, Table H8). The latest estimate of the Hospitals Budget was unavailable at the time of this analysis, and is discussed primarily in Appendix 6.1 and Table H8.

While the quality of the data employed is quite variable, costs, service output and program capacities can be approximated for current planning purposes. The assumptions on which estimates have been based are clearly stated, and the methods of computation described. It is important that these assumptions be challenged, tested, and where necessary altered on the basis of improved data or more seasoned judgement and experience. In this way, Financial Analysis can continue to be a useful tool in improving the quality, distribution and efficiency

by working in their private offices. Here they dole out prescriptions at 20 Afs. a visit. While they are diverted to this activity which is of questionable value, the hospital becomes a convalescent facility rather than an active treatment unit.

The position of certain specialists, such as anaesthetists and radiologists, is even worse as they have no effective way of supplementing their income. Their plight is so bad that one can safely predict such specialists will almost certainly emigrate once they have achieved an internationally acceptable standard of competence. Recent experience with anaesthetists confirms this thesis.

A fee-for-service system, based on receipts from patients who can afford to pay, would be ideal for the doctors but would unfairly exclude other key professionals. In addition it would be contrary to the personnel payment policies of the Ministry of Finance.

Yet a solution must be found. Otherwise there is absolutely no hope of significant or sustained improvement in the quality and efficiency of Afghan hospitals.

A system of fees for hospital services now exists but is poorly administered and it is now too easy, for many who can afford to pay, to avoid paying. This system should be extended to include realistic fees for hospital and professional services to inpatients and to polyclinic patients. These payments must be passed on to the Ministry of Finance. But the Ministry of Finance should return a portion of this sum, say 50%, to the hospital. Ten percent should be designated for

special projects or equipment required by the hospital but for which no provision was made in the budget. Forty percent should be divided up among the doctors, head nurses, chief administrative staff and department heads. The portion each receives could be decided by negotiation among the recipients.

These are the key people whose dedication and effort alone can raise the standard of care and the efficiency of the hospital. The occupancy rate will increase under this system, and the average length of stay will fall. The total receipts for hospital and professional services which will be received and retained by the Ministry of Finance will be several times larger than present receipts from hospitals.

At the same time the hospital polyclinic facilities must be substantially improved so that all patients can be interviewed and examined in privacy, warmth and cleanliness. The medical staff should be allowed to use these facilities at designated times during the week when they can see their private, fee-paying patients, from whom each physician collects (and retains) his fee directly. In this way they will remain on the hospital premises where they can quickly be reached in the event of emergency. Their professional time will be used with maximal efficiency.

7.4 Drugs and Biologicals Procurement

Studies in 1974 (9) and 1976 (10) agree that about as much money is spent on drugs in Afghanistan as on the total expenditures for all other health activities combined. Given

this situation, there are three reasons why careful Ministry of Public Health planning for drug procurement could be the most important and cost effective health contribution to the goals of the National Health Program that is possible over the next several years.

These reasons are:

1) Quality of Care
2) Availability of Care
3) Cost of Care

7.3.1 Quality of Care - The current level of knowledge and dispensing practice among health workers is very low, which directly diminishes quality of care. There are three components of quality which the Ministry of Public Health can affect: DRUG QUALITY; APPROPRIATE DRUG SELECTION; and APPROPRIATE DISPENSING.

DRUG QUALITY - Safe and effective drugs are obvious requirements. As the Ministry of Public Health moves to domestic production, the Afghan people will develop an impression of the quality of government generic drugs. The private sector manufacturers and importers will fiercely dispute the quality, and try to establish a bad image for generics. As the development of manufacturing competence and quality control is not simple and will take years, the initial phases should emphasize bulk procurement of finished goods, with concentration on appropriate packaging and marketing.

APPROPRIATE DRUG SELECTION - Many health workers,

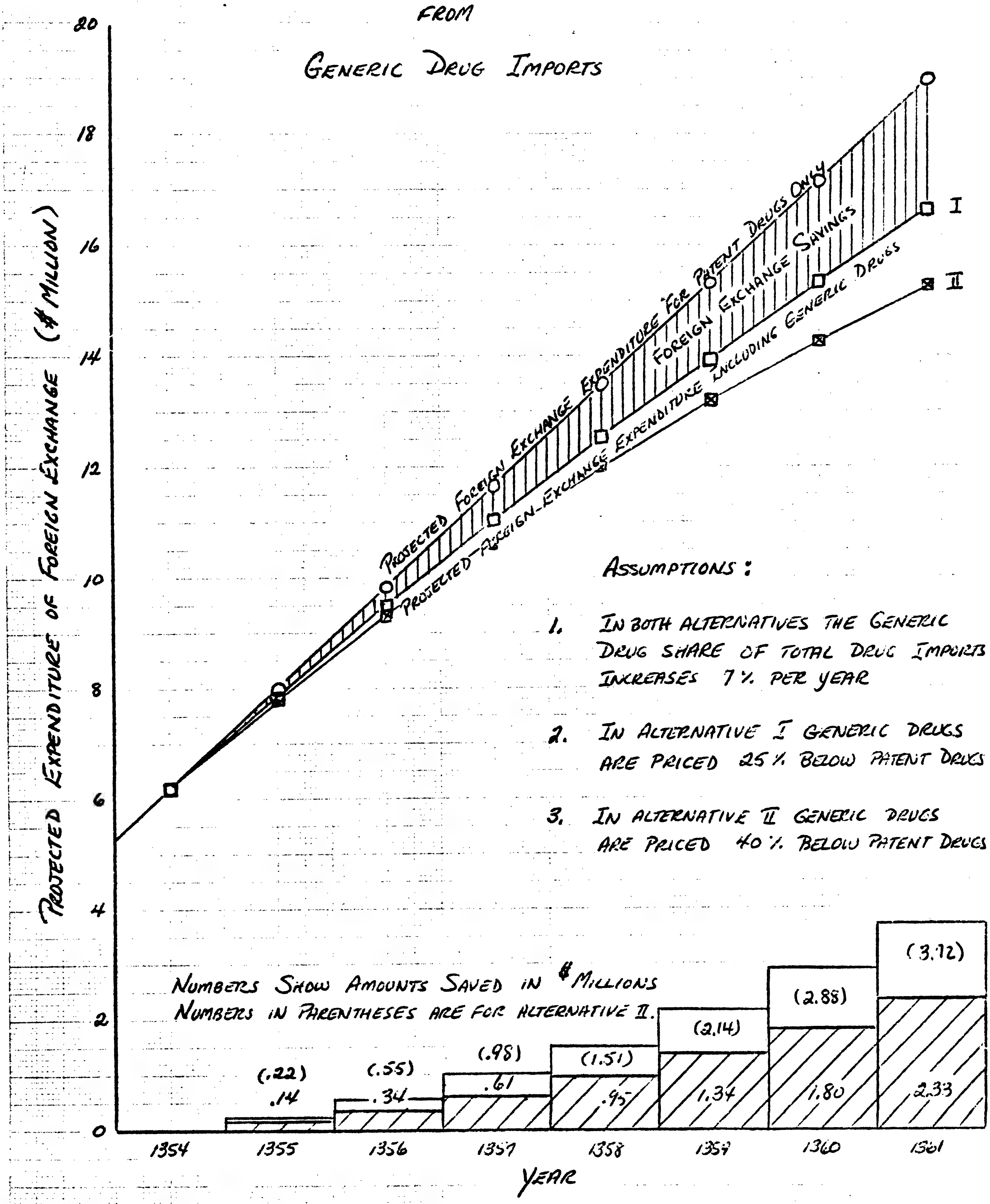
including physicians, have difficulty keeping up with the drugs of choice for each health problem. The Afghan National Drug Formulary, widely distributed and regularly improved, can be a major force for improved quality of care. As Formulary maintenance is a highly technical process, consideration might be given to using a high quality Formulary (such as the British National Formulary) as a baseline, with a committee of Afghan experts modifying it for local needs every two years.

APPROPRIATE DISPENSING - It is common practice to dispense inappropriate amounts of drugs, with inadequate instructions. (In the United States studies show that less than half of prescriptions are followed accurately.) This leads to failure of therapy, development of drug resistance, drug toxicity, and is a massive waste of money. Pilot studies of prepackaged drugs (in course of treatment amounts, with both pictorial and written instructions in Dari) have been well received by Afghan health workers in Parwan. A first priority of the expanded API program should be course-of-treatment packaging and labelling appropriate for local use.

7.3.2 Availability of Care - Carefully developed Ministry of Public Health policy on drugs can expand access to health care faster and at lower cost than any other Ministry of Public Health program. The reason is that people see drugs as their most important health need (5,6) and already pay large amounts for them (300 Afs./per family/

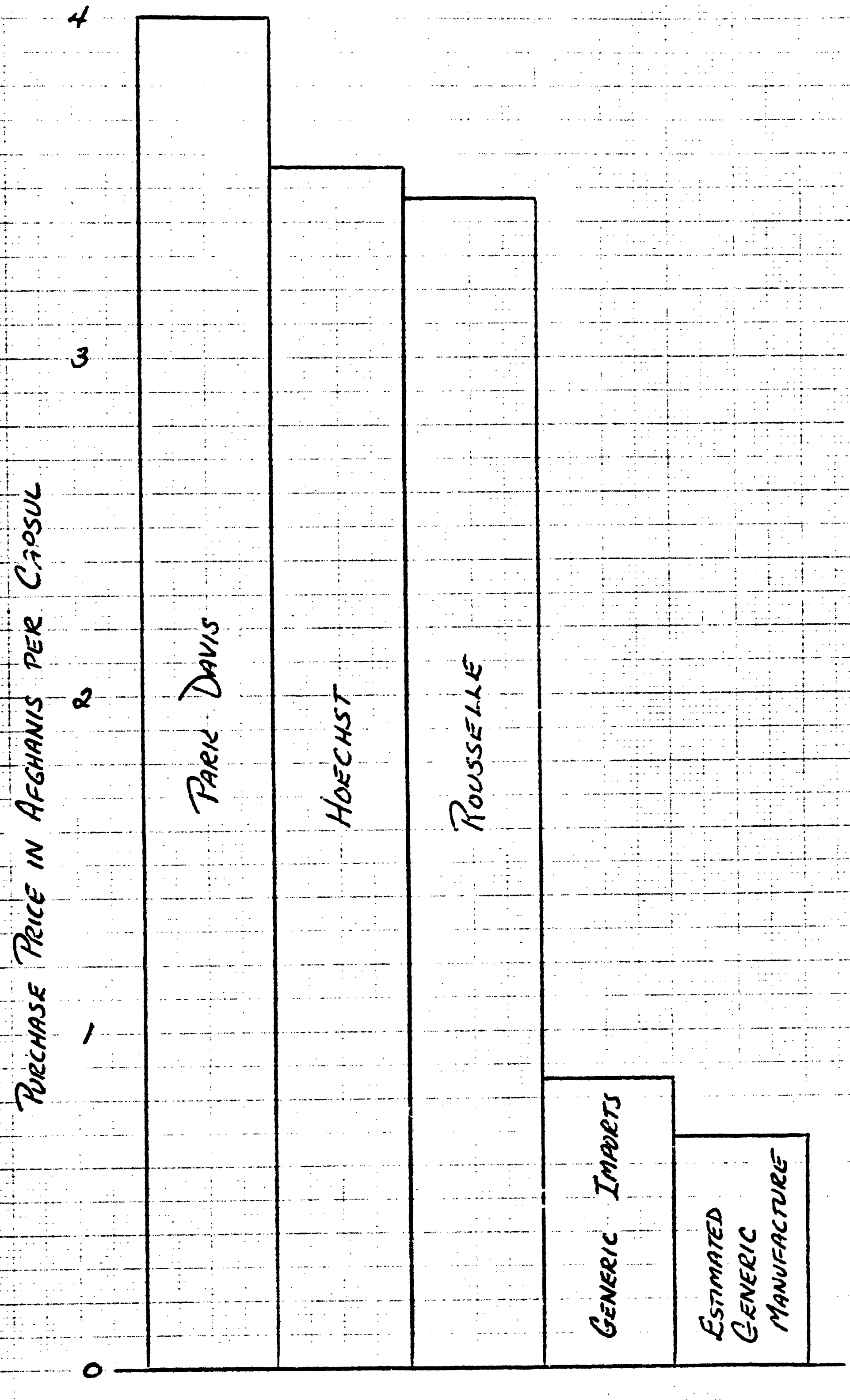
GRAPH IV

PROJECTED FOREIGN EXCHANGE SAVINGS FROM GENERIC DRUG IMPORTS



GRAPH V

COMPARISON OF CHLORAMPHENICOL PRICES



DATA PROVIDED BY AVICENNA PHARMACEUTICAL INSTITUTE.

per year (5)) even in remote rural areas. A Ministry of Public Health program to procure, package and market basic drugs for common problems, in course-of-treatment packages through pharmacies and dokhans, could markedly expand access to health, particularly for the labor force target group. Little additional Ministry of Public Health staff and financing would be required, and the program could generate a surplus to support other health programs.

7.3.3 Cost of Care

The cost savings from competetive generic bid procurement are well known. As people already eagerly pay for drugs, the Ministry of Public Health/API can provide at low cost and potentially retain a surplus to contribute to other Ministry of Public Health programs which are provided below cost.

A conservative estimate of foreign exchange effects is summarized in Graph 4. Using the foreign exchange requirement projected in the feasibility study (10) through 1361, a steady growth of generic drug market share from 0 to 50%, and pricing estimates averaging 25 to 40% below proprietary prices, between two and four million dollars per year will be saved.

Another useful example is reflected in recent prices for Chloramphenicol reported from API. Graph 5 shows that per capsule costs of generic chloramphenicol are a small fraction of the proprietary brands. Equally important is

the finding that the major share of the cost saving is in generic bid procurement of quality finished drugs, not in local production of capsules and tablets. Only a small (here 5%) difference between buying and making generics certainly cannot compensate for the tremendous problems of manufacture involved.

The Feasibility of an Afghan Pharmaceutical Plant

The latest feasibility study, is a valuable contribution, but is not sufficient to allow proceeding with confidence on a plan to build a pharmaceutical plant.

Two issues are addressed here: (1) the objectives of pharmaceutical plant development, and (2) the feasibility study itself.

1) The Objectives

The major objectives of pharmaceutical plant development in Afghanistan, as we understand them, are to bring necessary drugs of good quality, at low prices, in ways that can be used effectively, to the Afghan people, and to do it soon.

Necessary Drugs - have nothing to do with the type of pharmaceutical plant. They result from careful development of the Formulary, and limitation of drugs to those proven scientifically effective and appropriate for Afghan problems.

Good Quality - is directly related to the type and performance of the pharmaceutical plant. To

TABLE 2

UNIT COST/OUTPUT COMPARISONS OF MOPH

PROGRAMS AND TARGET POPULATIONS

(Afs/unit output)

Program	Output Unit	Target Populations: Infants	Children	Pregnant and Postpartum	Labor Force
Immunization 1/	Contact	19	19	19	
Tb/Leprosy 2/	Case Treated		1050	1050	1050
Malaria 3/	Contact	15	15	15	15
Basic Health Services 4/	Contact	47	47	47	47
Hospitals 5/	Discharge	1930	1930	990	4000
Water Supply 6/	Recipient	31	31	31	31

1/ Calculated from 1356 Immunization 7 Year Plan (see Appendix 1).

2/ Calculated from 1356 Tb 7 Year Plan (see Appendix 2).

3/ Calculated from 1356 Malaria Institute 7 Year Plan (see Appendix 3).

4/ Calculated from 1356 BHS estimated expenditure (see Appendix 5).

5/ Taken or calculated from table entitled "Hospital Input and Output Data - 1354 (see Appendix 6).

6/ Calculated from 1356 Water Supply 7 Year Plan (see Appendix 4).

produce tablets capsules and other forms at high quality standards requires skilled personnel and equipment maintenance capacity which, are not likely to be produced by a government program within the Seven Year Plan period.

Low Prices - will come primarily from bulk purchasing on competitive bid; not production in Afghanistan, as noted in Graph 5. In the quantities required for Afghanistan, only very small differences in cost will be found between international standard drugs and attempts to make tablets and capsules locally, with all the risks of machine and human failure added in. Raw materials make up most of the foreign exchange cost, and must be imported anyway.

Used Effectively - Discussed above, see "Appropriate Dispensing".

Available Soon - A plant initially focused on effective packaging of quality imported finished drugs could be in operation within a year, supplying a major share of drug needs. A more complex plant attempting to manufacture quality drugs will take much longer. The example of the Vaccine and Serum Institute is useful; a complex and highly expensive facility, it was scheduled to open several years ago

and is yet to begin significant production.

2) <u>The Feasibility Study Itself</u>

Given the objectives stated above, the feasibility study requires clarification and reconsideration:

There are several inconsistencies in important financial calculations: Pages 17 and 22 cite a 1.7 pricing factor incorporating shipping, customs duties and profits, to arrive at a retail price. Page 40, however, cites an import level of nineteen million dollars and expected retail price of fifty million, or factor of 2.6. Such major discrepancies in a report generated largely from secondary sources which are not appropriately referenced suggests that too much haste was employed for the report to be utilized as a final planning document.

There are serious questions about size and cost of the proposed facility. An eight point five (8.5) million dollar plant, employing over seven hundred people appears to be much too complex for the circumstances. A plant less than half that size is probably more than adequate. Open bids should be sought for construction and slowly phased down operational support. A "turnkey" operation is infeasible given the limited pool of experience, and would be a national catastrophe.

7.4 Financial Analysis Capability in the Ministry of Public Health

Certain expenditure and output information must be gathered on a continuing basis. The Ministry of Public Health is to be commended for recognizing this need and devoting the necessary resources and personnel to do the job.

The financial analysis section of the Administrative and Planning Development Program has been studied. Three comments seem to be in order. (i) The Program is both too vague as regards methods and too ambitious as regards it initial objectives The analysis capability must grow in a series of stages beginning with the simplest and most important cost data. (ii) An advisory committee is unnecessary. (iii) The financial analysis staff in the provinces will derive most of their expenditure data from the Mustafiats. They must work in these offices as well as in the provincial Public Health Offices.

Expenditure data for Kabul institutions has been far easier to get than for provincial institutions. Clearly there must be close collaboration with the Ministry of Finance both centrally and in the provinces so that accurate expenditure data can be compiled for each institution, department and program.

Attention should first focus on those programs which provide health services. At a later stage, rules can be devised for allocating administrative costs, technical support costs, training costs, and overhead among the service programs. Still later, depreciation schedules can be devised for equipment,

buildings and other capital spending. At each stage of development the financial analysis team must concentrate on the minimum data required to calculate accurately unit costs of service. Sampling techniques will be helpful both in improving accuracy of estimates and in reducing data collection costs. Only when one stage is working well should sights be raised to the next level of complexity.

The limits of financial analysis must be appreciated. For example with current data it is impossible to compare the relative cost-effectiveness of a vertical versus a horizontal immunization program. At the same time other considerations, such as availability of staff, proven success with smallpox, the large backlog of unimmumized infants and young children and the present limited reach of Basic Health Services all lead inexorably to the conclusion that immunization should be launched as a vertical program to get rid of the backlog. At the same time a pilot project should be launched as a horizontal program under Basic Health Services. Provided appropriate cost data are collected, financial analysis can help in judging the best timing and pace of this conversion completely to a horizontal program.

Inevitably the upgrading of health services will be uneven. Some hospitals and health centers will achieve an acceptable standard of service at an early stage in this process of change. Cost data from these benchmark institutions will be particularly valuable for planning purposes. For this reason they must be recognized early and given more detailed attention by those

of health services.

This Analysis has included only Ministry of Public Health spending. Most ambulatory care is provided in the private sector and a significant minority of Afghan hospital service is provided by the Ministries of Defense, Mines and Industry, Education (Kabul and Nanghahar Universities) and by the private sector. These should be included in any subsequent global analysis of health spending in Afghanistan.

The Financial Analysis looks first at Cost of Present Services, Outputs of present programs, and Cost/Output relationships.

responsible for financial analysis.

References Cited in Text

1) Country Health Programming Document, MOPH, July 1976

2) CARE Nutrition Assessment Survey, 1970

3) Infant/Child Mortality Survey, Kabul, WHO, 1974

4) CINAM Report, 1973

5) Rural Health Survey, 1975, MOPH

6) Rural Health Survey, 1976, MOPH

7) Afghan Demographic Studies - Population Survey, 1972-4

8) Parwan BHC Evaluation Report, March 1976

9) Procurement and Use of Medicines in Afghanistan, MOPH/MSH 1974

10) Feasibility Study on the Establishment and Development of Pharmaceutical Industry in Afghanistan, Kabul, 1976

Appendix 1 - Immunization

Immunization Program - Unit Cost/Output Estimation

Methodology and Assumptions

- from EIP 1356-61 dated 29/12/76, Rangaraj

1. Immunization

(US Dollars @ Afs 46)
(xooo)

	1356	1357	1358	1359	1360	1361
Operating Costs	130	500	465	495	523	525
MOPH Salaries	30	120	125	130	135	140
Vehicle Depreciation		40	40	40	40	40
Foreign Advisor	50	50	50	50	50	50
Total U.S. Dollars	210	710	680	705	748	755
Number of Contacts	200,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Cost per Contacts	48 Afs	25 Afs	24 Afs	25 Afs	26 Afs	27 Afs

Cost/Output Calculation:

$$\frac{\text{2 contacts/child x contact cost}}{\text{5 years depreciation (1)}} = \frac{2 \times 48}{5} = \text{19.2 afs/child}$$

(1) Assumes disease and immunity reached by age 5 under natural conditions; therefore value of protection is allocated over 5 years.

APPENDIX 2 -- TB/LEPROSY

TB Program -- Cost/Output Estimation

Assumptions: 1) BCG/Case Finding/Sputum Exam Done by Immunization
2) Costs of these included in Immunization Budget

	1356	1357	1358	1359	1360	1361
MOPH Budget	6046	7950	9300	9950	10600	11250
Foreign 1/	30682	22494	17204	16376	15180	15180
Afs Total(x000)	36728	30444	26504	26326	25780	26430
Pts. under Rx. (xooo)	35	38	42	46	50	50
Cost/Patient Treated	1049	801	631	572	516	528

1/ Foreign Assistance (xooo $US)

Total/7 Year Plan	2542	1689	1574	556	530	530
Less Immunization 2/	200	200	200	200	200	200
Less Capital Costs	1725	1000	1000			
Total ($000)	667	489	374	356	330	330
(46-$) Afs	30682	22494	17204	16376	15180	15180

2/ Immunization:

Local per diem, BCG vaccine, maintenance, mileage
UNICEF (70,000 + 100,000 + 10,000) + WHO (20,000) = $200,000/year

Age/Sex Distribution Estimate of Treated Patients
Data: Kabul TB Center, November 1976

Age	Male	Female	Total
0-14	364	466	830 (26%)
15+	820 (34%)	1597 (66%)	2417 (74%)
	1184	2063	3247

From Plan Pop Estimates, Preg/PP + Labor Force = 1080000 + 6417000 = 7497000
14% + 86% = 100%

Proportionally, % TB Patients 15+=74% x 14% = 10% Pts are Preg/PP
74% x 86% = 64% Pts are Labor Force
26% Pts are Children

APPENDIX 3 - MALARIA

Malaria - Unit Cost/Output Estimation

Source: 1) Malaria Control Program, Background and Supporting Information November 1976
2) Malaria 7 Year Plan (stencil copy)
3) Malaria 1356 Budget as approved

Assumptions: Budget = Expenditure, in view of independent budget

	1355	1356	1357	1358	1359	1360	1361
Budget from 7 Year Plan	66	69.5	72.7	76.4	80.0	84.2	88.4

Approved 1356 Budget 79.5

Foreign Assistance (US$x1000)

WHO-Advisors, etc.	341
WHO - Insecticide	400
UNDP	210
Japan	50
USSR	?
UK	83

TOTAL US$ = 1,084,000 x 46 Afs = 49,864,000
plus MOPH 79,500,000

1356 Total Budget / Population Coverage = 124,364,000 Afs / 8,800,000 = 14.7 Afs/Person Covered

For Budget Projection: Assumption made that total malaria budget (MOPH + foreign) will expand at 5% rate over plan period.

Related Facts: 1) Program Plan 1.5-1.65 million people protected with insecticide
7 million covered by drug treatment scheme
2) Children are prominent at risk group

WATER SUPPLY - Unit Cost/Output Estimation

Plan is: 1/

1) 500 shallow wells -

assume 100 dug at schools, serving 500 population	=	50,000
400 dug in villages, serving 250 population	=	100,000
2) 25 piped systems serving 2500 each	=	62,500
Annual Total Estimated Recipients	=	212,500

Budget Total, 1356 = 50,050,000 Afs

$$\frac{50,050,000}{212,500} = 235 \text{ Afs/Recipient}$$

Assume 10 Year Depreciation, $\frac{235}{10} = 23.5$ Afs/Recipient/year

Note that continued operation of all pumps is assumed here; many informal reports suggest that a substantial percentage of pumps are not functioning. Therefore the cost/output figure should be divided by the average percentage of wells functioning. In this example it is assumed that 75% of wells are functional.

$$\frac{23.5}{.75} = 31.33 \text{ Afs/recipient}$$

	1356	1357	1358	1359	1360	1361
Operating Cost		102,860	178,360	192,860	205,840	230,910
Equipment Replacement		36,747	44,517	44,867	40,867	42,117
Total Annual Cost (1000 Afs)	50,050 2/	139,657	222,877	237,727	246,707	273,027

1/ Based on Water Supply Plan 1355-61, dated Kabul 1355

2/ 1356 Revised 1 Year Workplan Figures

APPENDIX 5 - BASIC HEALTH SERVICES

BHS Cost/Output Estimation

Basic Health Centers

See attached table for detailed calculations

Budgets are projected as in 7 Year Plan

Expenditures are projected at 82% of budget, based on average of Ghazni and Parwan BHC expenditures.

Costs and Costs/Visit calculated for MOPH and Total figures for both budget and expenditure.

Services - Number of visits calculated from present average of 1st quarter 1355 and Parwan pre and post pilot study.

Access/Coverage - Parwan estimate (p. 52) 17,927 per Center; 25,000 assumed as maximal feasible figure here.

Subcenters

No calculations included here for two reasons:

1) No existing data/experience to suggest that subcenters can practically be staffed and operating on a large scale in the immediate future-Health Center staffs are already inadequate.

2) Substitution effect: travel and time required probably allow Health Center staff to see fewer patients at Sub center than if they had stayed at Health Center.

Village Health Workers

No estimates included in BHC table due to lack of existing data or experience.

However, due to immense potential contribution that VHWs can make to increasing access to health care in remote areas where the majority of people live, a separate sample table is included.

Assumptions in this table:

1) A rotating fund for drug purchase and packaging will be established; drug purchases will be sufficient to cover drug costs, which are therefore not included in cost/output calculation

2) Total BHC budget projection includes VHW budget.

Long term financial considerations - see next page.

APPENDIX 5.1

BASIC HEALTH SERVICES-ESTIMATED BUDGET, EXPENDITURE AND OUTPUT
Projections 1356-1361

(Budget-Expenditure in millions Afs)

	1356 4/		1357		1358		1359		1360		1361	
	Budget	Expend.	Budget	Expend.	Budget	Expend.	Budget	Expend.	Budget	Expend.	Budget	Expend.
MOPH Budget	76	62	83	69	94	77	99	81	104	85	109	89
1/ Foreign Contribution	41	41	44	44	47	47	51	51	55	55	60	60
Total	117	103	127	113	141	124	150	132	159	140	169	149
Number of Health Centers	138		148		165		174		183		193	
2/ Number of Visits/ Center	16000		17000		18000		19000		20000		20000	
Cost per Visit- MOPH	34	28	33	27	32	26	30	24	28	23	28	23
-Total	53	47	51	45	48	42	45	40	43	38	44	39
3/ Population with Health Center Access (millions)	3.450	3.450		3.700		4.125		4.350		4.575		4.825
Estimated Population (millions)		15.645		16.075		16.517		16.971		17.437		17.920
Percent Population with Health Center Access		22%		23%		25%		26%		26%		27%

1/ Foreign Contribution Calculation: (8% yearly growth assumed)
UNICEF: → = 523
AID : (879-428 Construction)=451-90 (20% allocated to other MOPH) = 361
1356 Total in US$ = 884,000 x 46 Afs = 40,664,000 Afs

2/ Visit Calculation: Average of 1) Parwan Experience, Page 49 2) 1st Quarter 1355 BHC Estimate: 149 of 327 reports = 196,950; standardized to 432,232/quarter for 104 centers: 15,800/Center/Year Assumed to grow annually by increases of 1000 till 1360.

3/ Health Center Access: Assume 25,000 people/center; (Parwan estimate, increased by 1/3)

4/ Expenditure Calculation: 1354 expenditures in Ghazni and Parwan were 87% and 77% of budget; average of 82% used here

APPENDIX 5.2

Long Term Financing and Maintenance - Village Health Program

Given any forseeable economic situation, the GOA cannot afford to pay for unlimited access to health care reaching to rural areas. Equally important is the fact that remote rural Afghans value access to health care, and pay for it themselves now. Repeated rural studies show annual family health expenditures which average 1000 afs or more, with 300 afs directly invested in drugs. 1/

VHW Financing: It is appropriate that the VHW program be planned as an entirely self-financing system if possible. The following example is illustrative:

1. VHW s are paid by the village, probably for most visits and drugs.

2. Assume VHW drugs, prepackaged and labelled in course-of-treatment units, are issued with color-coded labels which correspond to publicly posted, fixed prices.

   Assume three price levels, which are set to sell drugs cheaply, yet cover the essential training and continued supervision costs which are necessary for quality care and attention to important preventive and educational village activities.

3. VHW dispenses drugs at a set profit margin, say 2 Afs/pkg., so there is no incentive to sell high value drugs, and sells 50 packages/month or 600/year.

4. Each Health Center supervises 10-15 VHWs, and dispenses 6000-9000 packages/ year, with a 1 Af/pkg margin.

5. The MOPH dispenses to 60 Centers x 6-9000 pkgs = 360 to 540,000/year.

Price/Cost Structure:

	Price VHW Dispenses	VHW Buys	BHC Buys	MOPH Buys	MOPH Margin
Red	10	8	7	5	2
Green	20	18	17	10	7
Black	30	28	27	20	7

If MOPH dispenses 500,000 pkgs at average margin of 6 Afs, total is 3,000,000 Afs or approximately similar to VHW program total operating budget estimate of 3,500,000 Afs.

APPENDIX 5.3

VILLAGE HEALTH WORKER BUDGET AND CONTACT PROJECTIONS (Afs x 1000)

	1356	1357	1358	1359	1360	1361
Salaries	161	347	473	473	536	536
Training	90	270	420	564	726	930
Transport	134	268	336	463	470	470
Equipment	130	312	380	577	819	1118
Per Diem	137	298	444	444	496	496
Total (-Drugs)	653	1395	2052	2520	3047	3544
Drugs	900	3600	78000	13440	20700	30000
Number of BHCs	3	10	20	32	46	60
Number Villages	30	120	260	248	600	1000
Number Contacts (x1000)	23	90	195	336	518	750
MOPH Cost/Contact 1/	29 Afs	15.5 Afs	10 Afs	7.5 Afs	6 Afs	5 Afs
Planned BHC Contacts (x1000) 2/	2208	2516	2970	3306	3660	3860
Total Contacts (x1000) 3/	2231	2606	3165	3642	4177	4610
Total BHC Budget/ Contact 4/	- 52 Afs	49 Afs	45 Afs	41 Afs	38 Afs	37 Afs
Total BHC Expenditure/ Contact 5/	- 46 Afs	43 Afs	39 Afs	36 Afs	34 Afs	32 Afs

1/ MOPH Budget only - no drug or foreign assistance allocation
2/ Calculated from BHC table, 7 Year Plan
3/ Sum of BHC + VHW Contacts
4/ BHC Budget Table, which includes VHW budget above
5/ BHC expenditure estimate, at 82% of budget

2. Cost of Present Services

Where possible, costs have been estimated from analysis of expenditure rather than budget data for 1354, the last full year for which such data are available Expenditure data proved difficult to obtain for many institutions, in part due to a lack of cost accounting procedures. Where expenditure data were not available, budget data were used. In general, expenditures in broad categories bear a reasonably consistent relationship to budgets.

2.1 Estimated Program Costs Compared With Priority Population Groups

As an initial indicator of program focus on priority population groups, Table 1 summarizes the expenditure estimates submitted for 1356. The Analysis in general deals only with Ordinary Budget Allocations, although the Water Supply program is included from the Development Budget. Foreign assistance is included, and programs are allocated to target groups in proportions as footnoted in Table 1. This is done by making an estimate for each program of what amount of money is invested in service to each target group. For example, for the TB program, cases under treatment in the Kabul Zone are Infants 0%, Children 26%, Pregnant/PP Women 10%, and Labor Force 64%. The TB budget is allocated among target groups in proportion to these percentages.

The important findings include:

1) Only 6% of total health expenditure is directed to infants, the highest priority target group stated in the National Plan, who currently suffer 40% of total mortality, much of it preventable.

Appendix 6 - Hospitals

Alternative Hospital Plans - Outline of Three Expansion Plans

The complexity of hospital planning requires consideration of specific plans and defined assumptions regarding the many factors that affect hospital activity. Money, facilities and staff are all required and services cannot expand beyond the least available factor.

Three examples are considered for the remaining six years of the plan:

Alternative (A) - The number of hospitals and beds increase as in the present expansion plan. Expenditure per bed is held constant as are bed occupancy (70% average) and number of discharges per bed (20).

Alternative (B) - The number of hospitals and beds increase as in the present expansion plan. Expenditure per bed is increased to allow for increase in quality such as improved staffing and equipment. Bed occupancy increases from 70 to 75% and the number of discharges increases from 20 to 25 per bed.

Alternative (C) - Expansion of hospitals and beds is slowed down and concentrated in the larger regional hospitals where improvements in quality of care and utilization are most likely. Occupancy increases to 85%, and discharges increase to 30 per bed. At least one hospital is retained in each province but many small 10 to 20 bed facilities which are consistently poorly utilized and highly expensive to operate are converted to community health centers, concentrating on prevention but retaining a few beds for emergency care such as rehydration.

TABLE 1

PROGRAM EXPENDITURE RELATED TO PRIORITY
POPULATION ESTIMATES, 1356 PLAN, Afs x 1000

	Infants 0-1 Year	Children 1-14 Yrs	Pregnant/PP Women	Labor Force	Total	%
1. Immunization	40% 3864	40% 3864	20% 1932	X	9660 1/	2
2. TB/Leprosy	X	26% 9549	10% 3673	64% 23506	36,728 2/	6
3. Malaria	3.7% 4500	47% 57,199	7.1% 8641	42% 51,114	121,454 3/	22
4. Water Supply	3.7% 1852	47% 23,523	7.1% 3554	42% 21,021	50,050 4/	9
5. Basic Health Services	7% 7207	37% 38,096	6% 6178	50% 51,482	102,963 5/	19
6. Hospitals (B)	7% 16,035	21% 48,105	10% 22,907	62% 142,023	229,070 6/	42
Total Expenditures	33,458	180,336	46,885	289,146	549,900	
% Total Health Budget	6%	33%	9%	52%		100
% Total Mortality	38%	24%	[---------38%------]			
% Total Population	3.7%	47%	7.1%	42%		

Data Sources/Methodology: Ordinary Budget only - no construction

1/ Expanded Immunization Plan, dated 24/12/76; allocated one-third each to infants (DPT + BCG), children (DPT), pregnant (TT).

2/ TB Institute Budget (not expenditure); allocated proportional to Kabul TB Center patient age/sex distribution, November 1976; see TB Cost Estimation Sheet

3/ Malaria Institute Budget, 1356; allocated proportional to population

4/ Water Supply Budget, 1356; workplan revised to 11/1/77; allocated proportional to populatio

5/ Basic Health Services expenditure estimate (82% of budget); Parwan proportional

6/ Hospitals Estimate, see Table H-7

TABLE A-1

PROJECTED HOSPITAL CAPACITY 1355-1361

Category	Province	Hospital Name	Current Number of Beds 1355	Planned Number of Beds 1356	1357	1358	1359	1360	1361
2	Kabul	Wazir Akbar Khan	210	210	210	210	210	210	210
1B		Avicenna			110	110	110	110	110
1B		Jamhuriat	220	250	250	250	250	250	250
2		Chest Clinic	45	45	45	45	45	45	45
2		Maternity and Gynecology	165	165	165	165	165	165	165
2		Women's Sanatorium	75	75	75	75	75	75	75
3		Jail Hospital	52	52	52	52	52	52	52
1A		NOOR Eye Hospital	95	95	95	95	95	95	95
1C		Child Health Institute	135	170	170	170	170	170	170
1C		ENT Institute				50	50	50	50
4		Paghman	10	10	10	10	10	10	10
3	Parwan	Charekar	30	30	30	30	30	30	30
4		Kapisa	10	20	20	20	20	20	20
4	Wardak	Maidan	10	10	10	10	10	10	10
3		Behsood (2nd part)		20	20	20	20	20	20
2		Leprosy	10	10	10	10	10	10	10
4	Logar	Barakibarak	15	15	15	15	15	15	15
3	Ghazni	Ghazni	30	30	30	50	50	50	50
4		Katawaz	10	10	10	10	10	20	20
4	Paktia	Gardez	15	15	15	15	15	15	15
3		Khost	44	44	44	44	44	44	44
4		Jaji	10	10	10	10	10	10	10
4		Zormat	10	10	10	10	10	10	10
3		Orgoon	15	15	15	15	30	30	30
3		Chamkani	30	30	30	30	30	30	30

continued

TABLE H-1 Continued

Category	Province	Hospital Name	Current # Beds 1355	Planned Number of Beds 1356	1357	1358	1359	1360	1361
2	Nangrahar	Jalalabad	65	65	65	200	200	200	200
4		Shinwar (Ghanikhel)	10	10	10	10	10	10	10
4		Konarha (Asadabad)	10	20	20	20	20	20	20
3	Laghman	Metarlam	10	20	20	20	20	20	20
3	Badakhshan	Faizabad	30	30	30	30	30	30	30
2		Drug Rehabilitation			50	50	50	50	50
3	Takhar	Takhar	15	15	15	15	15	15	15
4		Rostoq	10	10	10	10	10	10	10
4		Khwa Jaghâr						20	20
3	Baghlan	Baghlan	65	65	65	65	65	65	65
4		Pulekhumri	10	10	10	10	10	10	10
3(2)	Kunduz	Kunduz	15	15	15	15	15	200	200
4		Khanabad	10	30	30	30	30	30	30
4		Dashte Archi		20	20	20	20	20	20
3	Samangan	Samangan	20	30	30	30	30	30	30
2	Balkh	Mazari Sharif	65	65	65	65	65	65	65
4		Balkh Woleswali	10	10	10	10	10	10	10
3	Jauzjan	Shiberghan	20	20	20	20	20	20	20
4		Aacha	10	20	20	20	20	20	20
3	Faryab	Maimana	25	25	25	25	25	25	25
4		Andkhoy	10	20	20	20	20	20	20
3	Badghis	Bala Morghab		20	20	20	20	20	20
4		Kalai Nau	10	20	20	20	20	20	20
2	Herat	Herat	70	70	70	200	200	200	200

TABLE H-1 continued

Category	Province	Hospital Name	Current # Beds 1355	Planned Number of Beds 1356	1357	1358	1359	1360	1361
	(Herat cont.)								
1A		Herat Eye Hospital			30	30	30	30	30
4		Choryan	10	10	10	10	10	10	10
3	Farah	Farah	20	30	30	30	30	30	30
4		Shindand	10	10	10	10	10	10	10
3	Nimroz	Nimroz	15	15	15	15	15	15	15
4	Helmand	Gereshk	15	15	15	15	15	15	15
2	Kandahar	Kandahar	100	100	250	250	250	250	250
3	Zabul	Qalat	10	30	30	30	30	30	30
3	Oruzgan	Oruzgan	10	20	20	20	20	20	20
3	Ghorat	Chakcharan	10	20	20	20	20	20	20
3	Bamiyan	Bamiyan	10	10	10	10	10	10	10
4		Yak lang		20	20	20	20	20	20
		TOTAL	1946	2231	2571	2906	2921	3136	3136

TABLE H-2

PLANNED HOSPITAL BED CAPACITY BY CATEGORY

Category	Description	1355	1356	1357	1358	1359	1360	1361
		For Alternatives A and B						
1A	NOOR and Herat Eye Hospitals	95	95	125	125	125	125	125
1B	Jamhuriat and Avicenna	220	250	360	360	360	360	360
1C	Child Health and ENT Institute	135	170	170	220	220	220	220
2	Kabul and Regional Hospitals	805	805	1005	1270	1270	1470	1470
3	Provincial Center Hospitals	476	586	586	606	621	606	606
4	Small Hospitals	215	325	325	325	325	355	355
	* Total	1946	2231	2571	2906	2921	3136	3136
		For Alternative C						
1A	NOOR and Herat Eye Hospitals	95	95	125	125	125	125	125
1B	Jamhuriat and Avicenna	220	250	360	360	360	360	360
1C	Child Health and ENT Institute	135	170	170	220	220	220	220
2	Kabul and Regional Hospitals	805	805	1005	1335	1335	1385	1385
3	Provincial Center Hospitals	476	586	586	586	586	611	611
4	Small Hospitals	215						
	Total	1946	1906	2246	2626	2626	2701	2701

* The total bed capacity is the same as that contained in the current version of the Hospital Program Plan (1/17/76) except in the case of Jamhuriat which is assigned a capacity of 220 beds based on a recent count.

The following assumptions were made in developing the projection:

1. All hospitals in Category 4 are converted into Community Health Centers in 1356.
2. The Baghlan Hospital is upgraded from Category 3 to Category 2 in 1358.
3. 25 beds are added to Takhar Hospital in 1360.
4. The Kunduz Hospital capacity should be increased to 50 beds at the level of Cateogry 2 in 1360.

TABLE H-2

PLANNED HOSPITAL BED CAPACITY BY CATEGORY

Category	Description	1355	1356	1357	1358	1359	1360	1361
			For Alternatives A and B					
1A	NOOR and Herat Eye Hospitals	95	95	125	125	125	125	125
1B	Jamhuriat and Avicenna	220	250	360	360	360	360	360
1C	Child Health and ENT Institute	135	170	170	220	220	220	220
2	Kabul and Regional Hospitals	805	805	1005	1270	1270	1470	1470
3	Provincial Center Hospitals	476	586	586	606	621	606	606
4	Small Hospitals	215	325	325	325	325	355	355
	* Total	1946	2231	2571	2906	2921	3136	3136

* The total bed capacity is the same as that contained in the current version of the Hospital Program Plan (1/17/76) except in the case of Jamhuriat which is assigned a capacity of 220 beds based on a recent count.

For Alternative C

Category	Description	1355	1356	1357	1358	1359	1360	1361
1A	NOOR and Herat Eye Hospitals	95	95	125	125	125	125	125
1B	Jamhuriat and Avicenna	220	250	360	360	360	360	360
1C	Child Health and ENT Institute	135	170	170	220	220	220	220
2	Kabul and Regional Hospitals	805	805	1005	1335	1335	1385	1385
3	Provincial Center Hospitals	476	586	586	586	586	611	611
4	Small Hospitals	215						
	Total	1946	1906	2246	2626	2626	2701	2701

The following assumptions were made in developing the projection:

1. All hospitals in Category 4 are converted into Community Health Centers in 1356.
2. The Baghlan Hospital is upgraded from Category 3 to Category 2 in 1358.
3. 25 beds are added to Takhar Hospital in 1360.
4. The Kunduz Hospital capacity should be increased to 50 beds at the level of Cateogry 2 in 1360.

TABLE H-3

PROTECTED HOSPITAL COSTS - ALTERNATIVE 4

Category	Information	1355	1356	1357	1358	1359	1360	1361	r
1A ("Noor")	Number of Beds	95	95	125	125	125	125	125	
	Cost per Bed	236 926	236 926	236 926	236 926	236 926	236 926	236 926	
	MoPH Contribution	8480 000	8480 000	11158 000	11158 000	11158 000	11158 000	11158 000	
	Foreign Aid Contribution	14028 000	14028 000	18458 000	18458 000	18458 000	18458 000	18458 000	
	TOTAL	22508 000	22508 000	29616 000	29616 000	29616 000	29616 000	29616 000	
1B ("Jamhuriat")	Number of Beds	220	250	360	360	360	360	360	
	Cost per Bed	175 354	175 354	175 354	175 354	175 354	175 354	175 354	
	MoPH Contribution	19977 000	22701 000	32689 000	32689 000	32689 000	32689 000	32689 000	
	Foreign Aid Contribution	18601 000	21137 000	30438 000	30438 000	30438 000	30438 000	30438 000	
	TOTAL	38578 000	43838 000	63127 000	63127 000	63127 000	63127 000	63127 000	
1C ("CHI")	Number of Beds	135	170	170	220	220	220	220	
	Cost per Bed	156 867	156 867	156 867	156 867	156 867	156 867	156 867	
	MoPH Contribution	14238 000	17929 000	17929 000	23201 000	23201 000	23201 000	23201 000	
	Foreign Aid Contribution	6940 000	8738 000	8738 000	11309 000	11309 000	11309 000	11309 000	
	TOTAL	21177 000	26667 000	26667 000	34510 000	34510 000	34510 000	34510 000	
2 ("Wazir")	Number of Beds	805	805	1005	1270	1270	1470	1470	
	Cost per Bed	70 975	70 975	70 975	70 975	70 975	70 975	70 975	
	TOTAL	57135 000	57135 000	71330 000	90138 000	90138 000	104333 000	104333 000	
3 ("Provincial")	Number of Beds	476	586	586	606	621	606	606	
	Cost per Bed	50 311	50 311	50 311	50 311	50 311	50 311	50 311	
	TOTAL	23948 000	29482 000	29482 000	30488 000	31243 000	30488 000	30488 000	
4 ("Small")	Number of Beds	215	325	325	325	325	355	355	
	Cost per Bed	69 721	69 721	69 721	69 721	69 721	69 721	69 721	
	TOTAL	14990 000	22659 000	22659 000	22659 000	22654 000	24751 000	24751 000	
	TOTAL NUMBER OF BEDS	1946	2231	2571	2906	2921	3136	3136	8.28
	AVERAGE COST PER BED	91 642	90.672	94 469	93 046	42 811	41 462	41 462	9.00
	TOTAL MoPH CONTRIBUTION	138768 000	158386 000	185247 000	210333 000	211088 000	226620 000	226620 000	
	TOTAL FOREIGN AID CONTRIBUTION	39569 000	43903 000	57634 000	60205 000	60205 000	60205 000	60205 000	
	TOTAL	178336 000	202289 000	242881 000	270538 000	271293 000	286825 000	286825 000	
	ESTIMATED MoPH BUDGET	150146 000	171668 000	200299 000	227774 000	228120 000	244948 000	244948 000	8.50

TABLE H-4

PROJECTED HOSPITAL COSTS : ALTERNATIVE B

Category	Information	1355	1356	1357	1358	1359	1360	1361	r
1A ("Noor")	Number of Beds	95	95	125	125	125	125	125	
	Cost per Bed	236 926	369 884	267 920	276 680	294 704	301 272	314 752	
	MoPH Contribution	8480 000	17245 000	12560 000	13333 000	15264 000	15717 000	16988 000	
	Foreign Aid Contribution	14028 000	17894 000	20930 000	21252 000	[illegible]	[illegible]	22356 000	
	TOTAL	22508 000	35139 000	33490 000	34585 000	36830 000	37659 000	39344 000	
1B ("Jamhuriat")	Number of Beds	220	250	360	360	360	360	360	
	Cost per Bed	175 354	179 240	183 212	187 272	191 422	195 664	200 000	
	MoPH Contribution	19977 000	23204 000	34154 000	34911 000	35685 000	36416 000	37284 000	
	Foreign Aid Contribution	18601 000	21606 000	31802 000	32507 000	33227 000	33463 000	34716 000	
	TOTAL	38578 000	44810 000	65956 000	67418 000	68912 000	70439 000	72000 000	
1C ("C.H.I.")	Number of Beds	135	170	170	220	221	220	220	
	Cost per Bed	156 861	191 324	220 574	232 [illegible]	247 582	265 466	294 245	
	MoPH Contribution	14238 000	22934 000	26443 000	35489 000	38401 000	41184 000	45653 000	
	Foreign Aid Contribution	6940 000	9591 000	11058 000	15051 000	16061 000	17223 000	19092 000	
	TOTAL	21177 000	32525 000	37501 000	51040 000	54462 000	58407 000	64745 000	
2 ("Wazir")	Number of Beds	805	805	1005	1270	1270	1470	1470	
	Cost per Bed	70 975	77 996	85 [illegible]	94 [illegible]	103 505	113 747	125 000	
	TOTAL	57135 000	62787 000	86140 000	119622 000	131455 000	167203 000	183750 000	
3 ("Provincial")	Number of Beds	476	586	586	606	62[illegible]	606	606	
	Cost per Bed	50 311	53 158	56 166	59 344	62 103	66 251	70 000	
	TOTAL	23948 000	31151 000	32913 000	35962 000	38939 000	40148 000	42420 000	
4 ("Small")	Number of Beds	215	325	325	325	325	355	355	
	Cost per Bed	69 721	69 721	69 721	69 721	69 721	69 721	69 721	
	TOTAL	14990 000	22659 000	22659 000	22659 000	22659 000	24751 000	24751 000	
	TOTAL NUMBER OF BEDS	1946	2231	2571	2906	2921	3136	3136	8.28
	AVERAGE COST PER BED	91 642	102 676	108 385	114 [illegible]	120 942	127 108	136 164	6.25
	TOTAL MOPH CONTRIBUTION	138 768 000	179980 000	214869 000	262476 000	282409 000	325484	350846 000	
	TOTAL FOREIGN AID CONTRIBUTION	34567 000	49091 000	63790 000	68810 000	70862 000	73128 000	76164 000	
	TOTAL	178336 000	229071 000	278659 000	331286 000	353271 000	398612 000	427010 000	
	ESTIMATED MOPH BUDGET	150146 000	147164 000	232087 000	283292 000	304785 000	351317 000	318603 000	16.67

TABLE H-5

PROJECTED HOSPITAL COSTS - ALTERNATIVE C

Category	Information	1355	1356	1357	1358	1359	1360	1361	r
1A ("Noor")	Number of Beds	95	95	125	125	125	125	125	
	Cost per Bed	236,926	369,894	267,920	276,680	294,704	301,272	314,752	
	MoPH Contribution	8,480,000	17,245,000	12,560,000	13,333,000	15,264,000	15,717,000	16,988,000	
	Foreign Aid Contribution	14,028,000	17,894,000	20,930,000	21,252,000	21,574,000	21,942,000	22,356,000	
	TOTAL	22,508,000	35,139,000	33,490,000	34,585,000	36,838,000	37,659,000	39,344,000	
1B ("Jamhuriat")	Number of Beds	220	350	360	360	360	360	360	
	Cost per Bed	175,554	179,240	183,212	187,272	191,402	195,664	200,000	
	MoPH Contribution	19,977,000	23,204,000	34,154,000	34,911,000	35,685,000	36,476,000	37,284,000	
	Foreign Aid Contribution	18,601,000	21,606,000	31,802,000	32,507,000	33,227,000	33,963,000	34,716,000	
	TOTAL	38,578,000	44,810,000	65,956,000	67,418,000	68,912,000	70,439,000	72,000,000	
1C ("C.H.I.")	Number of Beds	135	170	170	220	220	220	220	
	Cost per Bed	156,[illegible]	191,324	220,[illegible]	232,000	247,[illegible]	265,[illegible]	294,[illegible]	
	MoPH Contribution	14,233,000	22,934,000	26,443,000	35,989,000	[illegible]	41,184,000	45,653,000	
	Foreign Aid Contribution	6,940,000	9,591,000	11,058,000	15,051,000	16,061,000	17,223,000	19,092,000	
	TOTAL	21,177,000	32,525,000	37,501,000	51,040,000	54,426,000	58,407,000	64,745,000	
2 ("Wazir")	Number of Beds	805	805	1005	1330	1335	1335	1385	
	Cost per Bed	70,975	77,[illegible]	85,712	[illegible]	103,508	115,742	125,000	
	TOTAL	57,135,000	62,797,000	[illegible]140,000	126,745,000	137,178,000	157,540,000	173,125,000	
3 ("Rabia Balkhi")	Number of Beds	476	586	586	586	586	611	611	
	Cost per Bed	50,311	53,158	56,165	59,344	62,703	66,251	70,000	
	TOTAL	23,948,000	31,151,000	32,913,000	34,776,000	36,744,000	40,479,000	42,770,000	
	Total Number of Beds	1731	1956	2246	2626	2626	2701	2701	7.70
	Average Cost Per Bed	94,365	105,[illegible]	113,950	119,407	127,626	134,[illegible]	145,126	7.44
	Total MoPH Contribution	123,778,000	157,021,000	192,210,000	244,754,000	264,283,000	291,396,000	315,820,000	
	Total Foreign Aid Contribution	39,569,000	47,091,000	62,790,000	68,810,000	70,862,000	73,128,000	76,164,000	
	TOTAL	163,346,000	206,412,000	256,000,000	313,564,000	335,145,000	364,524,000	391,984,000	
	Estimated MoPH Budget	133,357,000	164,251,000	200,709,000	243,198,000	284,215,000	313,526,000	359,799,000	16.87

2) Only 1.8% of health expenditure is devoted to immunization, including BCG, a service with the highest cost effectiveness among Ministry of Public Health programs.

3) Basic Health Services receives less than half the investment that hospitals receive, 18.7% compared to 41.6%.

TABLE H-6

HOSPITAL INPUT AND OUTPUT DATA - 1354

Category	Province	Hospital Name (Estimated IP:OP)(3)	No. of Beds	MoPH Budget	Foreign Aid Budget	Total Budget	Total Expenditures	Expenditure: Budget %	Number of Discharges	Average Length of Stay	Patient Days	Potential Patient Days	Occupancy Rate %	Cost per Bed (CpB assuming IP:OP)	Cost per Discharge (CpD assuming IP:OP)	Cost per Patient Day (CpPD assuming IP:OP)	Polyclinic or ED Visits	Cost per Polyclinic or ED Visit assuming IP:OP
4	Ghazni	Katawaz (IP:OP = 50:50)(4)	10	543 760		543 760	535 055(1)	98	77(5)	6.5(2)	500	3650	14	53 [illegible] (26 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])		
4	Parwan	Kapisa (IP:OP = 60:40)	10	865 [illegible]		865 [illegible]	629 [illegible](1)	73	132(5)	6.5(4)	[illegible]	3650	21	62 [illegible] (37 [illegible])	4 [illegible] ([illegible])	[illegible] ([illegible])		
4	Takhar	Rostaq (IP:OP = 60:40)	10	595 015		595 015	420 [illegible](1)	71	121(5)	8.1(4)	[illegible]	3650	27	42 [illegible] (25 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])		
3	Takhar	Taloqan (IP:OP = 85:15)	15	1120 [illegible]		1120 [illegible]	942 [illegible](1)	84	618(5)	7.1(3)	[illegible]	5475	31	63 [illegible] (53 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])		
	Small Hospitals Totals or Weighted Averages (IP:OP = 66:34)		45	3124 [illegible]		3124 [illegible]	2527 134	81	948	7.1	6226	14425	41	56 [illegible] (37 [illegible])	2 [illegible] ([illegible])	[illegible] ([illegible])		
3	Parwan	Charikar (IP:OP = 75:25)	30	1757 215		1757 215	1531 [illegible]	87	880(5)	6.7(2)	[illegible]	10950	54	51 [illegible] (38 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])		
3	Ghazni	Ghazni (IP:OP = 75:25)	30	1580 840		1580 840	1351 609	85	670(6)	7.2(3)	4 824	10950	44	45 [illegible] (33 790)	2017 ([illegible])	[illegible] ([illegible])	20 [illegible](7)	[illegible]
3	Baghlan	Baghlan (IP:OP = 70:30)	65	2463 371		2463 [illegible]	2367 216	96	1 [illegible]	6.6	8 [illegible](5)	23725	35	36 [illegible] (25 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])		
	Provincial Hospitals Totals or Weighted Averages (IP:OP = 72:28)		125	5801 426		5801 426	5250 [illegible]	91	2816	6.8	1 [illegible]	45625	42	47 [illegible] (30 295)	[illegible] ([illegible])	[illegible] ([illegible])		
2	Kabul	Women's Maternity & Gyn. (IP:OP = 85:15)	165	18490 304		18490 304	15006 002(10)	81	12 [illegible](11)	4.4	51 [illegible]	60225	85(7)	90 [illegible] (77 [illegible])	[illegible] ([illegible])	[illegible] ([illegible])	147 [illegible](11)	[illegible]
2	Kabul	Wazir Akhbar Khan (IP:OP = 85:15)	210	16363 055		16363 055	15119 019(10)	92	5 340	12.2(11)	65 152	76650	85(8)	71 [illegible] (61 [illegible])	2 [illegible] ([illegible])	[illegible] ([illegible])	43 [illegible](11)	57.21
1	Kabul	Jamhuriat (Avicenna) (IP:OP = 85:15)	100	11392 009	19580 220	30972 [illegible]	29424 [illegible]	95(12)	1866(5)	15.0(11)	27 990	36500	77	294 [illegible] (250 [illegible])	15 [illegible] (13 [illegible])	[illegible] ([illegible])	51 [illegible]	86 [illegible]
1	Kabul	Child Health Institute (IP:OP = 90:10)	125	11846 300	7305 000	19151 300	17810 [illegible]	93(13)	8 303	6.0	49 [illegible]	45625	101	131 [illegible] (113 138)	2 [illegible] (1 931)	[illegible] (30 [illegible])	80 [illegible]	22 [illegible]

(1) Data collected with assistance of Dr. Wahabzada directly from institution
(2) Data from Inpatients in Afghanistan Hospitals - 1353 figures
(3) IP:OP means the ratio of Inpatient to Outpatient activity or effort - figures assumed
(4) Assumed same average length of stay as Katawaz Hospital
(5) From 1354 MoPH "Discharge Report"
(6) Calculated from MoPH "Discharge Report"
(7) Extrapolation from data for 1st quarter 1355 collected from Ghazni Hospital with assistance of Dr. Wahabzada
(8) Report received from Curative Medicine Dept.
(9) Assumed occupancy rates, since data provided occupancy rates that were unrealistically low.
(10) Figure from the MoPH Administration Dept.
(11) Figure derived from sample of patient records
(12) Assumed figure on advice of Care Medico
(13) Figure derived from MoPH expenditure pattern applied to foreign aid contribution as well.

TABLE H-7

Allocation of 1356 Hospital Costs to Target Groups

(Notes for Table 1)

Infants

1. In 1354, 8068 out of 54,885 outpatients (15%) were infants and 2276 out of 8303 discharges (27%) from the Child Health Institute were < 1 year. Total costs 26,667,000 Afs 1356, 10% allocated to outpatients and 90% to in-patients.

   Therefore cost allocation to infants = 26,667,000 x 0.1 x 0.15 → 400,000
   \+ " " x 0.. x 0.27 → 6,480,000

2. 20% of Zaisghah cost, 1356 allocated to infants 15,000,000 x 0.20 — 3,000,000

3. 2% of Jamhouriat, 43,838,000 — 877,000

4. 4% of remaining hospital costs, except NOOR, 94,276,000 — 3,771,000

Total — 14,528,000

Children 21% of total — 42,481,000

Pregnant and Post-Partum Women
1. 80% of Zaisghah 15,000,000 — 12,000,000

2. 6% of remaining hospitals (except CHI and NOOR) 13,814,000 — 8,287,000

Labor Force, remaining 1356 costs allocated to this group — 124,993

Group	Amount Afs 000	%
Infants	14,528	7
Children	42,481	21
Pregnant and PP	20,287	10
Labor Force	124,993	62
	202,289	100

Appendix 6.1 - MOST RECENT CURATIVE EXPENDITURE PROJECTIONS

Table H8 presents the most recent budget plans for the Department of Curative Medicine for 1356-61. Expenditure data have been estimated by assuming that 90% of total budgets will be spent. The pattern of increases in 1356 over budgets for 1355, by institution, follows no desirable pattern There is a four fold increase in overhead and central administrative expenses in 1356 over 1355.

The table includes a bar graph in the lower right hand corner illustrating the cost per bed of the group 2 (regional), group 3 (provincial) and group 4 (small) hospitals. In thousands of Afs there are, 119, 92 and 126 respectively.

When one considers that the number of discharges per bed decreases sharply from group 2 to group 4, the stark reality of the gross inefficiency of these small hospitals is even more outstanding.

As staffing availability is no more assured for this plan than any other, the 71% increase in Hospitals Budget between 1355 and 1356 seems a very questionable allocation.

Projected Hospital Costs - Hospital Committee Alternative

(All Figures Except "Number of Beds" in Thousands of Afs)

Hospital Category	Information	1355	1356	1357	1358	1359	1360	1361
1A ("Noor")	Number of Beds	95 [1]	95 [1]	125 [2]	125 [2]	125 [2]	125 [2]	125 [2]
	Cost Per Bed	237	370	268	277	295	301	315
	MoPH Contribution	8480	17245	12560	13333	15264	15717	16988
	Foreign Aid Contribution	14028	17894	20930	21252	21574	21942	22356
	Total	22508	35139	33490	34585	36838	37659	39344
1B ("Jamhuriat")	Number of Beds	220 [1]	250 [1]	360 [2]	360 [2]	360 [2]	360 [2]	360 [2]
	Cost Per Bed	174	175	183	186	189	192	196
	MoPH Contribution	19750	22157	33914	34593	34872	35033	35722
	Foreign Aid Contribution	18601	21606	31802	32507	33227	33963	34716
	Total	38351	43763	65716	67100	68099	68996	70438
1C ("C.H.I.")	Number of Beds	135 [1]	170 [1]	170 [1]	220 [2]	220 [2]	220 [2]	220 [2]
	Cost Per Bed	156	188	205	211	217	223	234
	MoPH Contribution	14102	22408	23818	31441	31694	31841	32467
	Foreign Aid Contribution	6940	9591	11058	15051	16061	17223	19092
	Total	21042	31979	34876	46492	47755	49064	51559
2 ("Wazir")	Number of Beds	805 [8]	805 [8]	1005 [9]	1270 [9]	1270 [9]	1470 [10]	1470 [10]
	Cost Per Bed	71	107	113	116	117	117	119
	Total	56972	85880	113963	146899	148083	172194	175580
3 ("Provincial")	Number of Beds	476 [20]	586 [22]	586 [22]	606 [22]	621 [22]	606 [21]	606 [21]
	Cost Per Bed	57	82	87	89	90	90	92
	Total	27341	48125	51153	53959	55741	54645	55720
4 ("Small")	Number of Beds	215 [22]	325 [22]	325 [22]	325 [23]	325 [22]	355 [23]	355 [23]
	Cost Per Bed	83	113	120	122	123	124	126
	Total	17826	36694	39003	39785	40105	44009	44875
	Total Number of Beds	1946 [51]	2231 [55]	2571 [58]	2906 [59]	2921 [59]	3136 [60]	3136 [60]
	Average Cost Per Bed	99	118	127	128	130	129	132 (2)
	Total MoPH Contribution	152582 (1)	215262	263677	304007	308039	332237	338771
	Total Foreign Aid Contribution	39569	49091	63790	68810	70862	73128	76164
	Grand Total	192151 (1)	264353	327467	372817	378901	405365	414936
	Proposed MoPH Budget	169536 (1)	239181	292794	337785	342266	369152	376412
	Proposed MoPH Budget with 5% Inflation Rate			307434	372408	396216	448706	480408

The small numbers indicate the number of institutions in each category

Notes

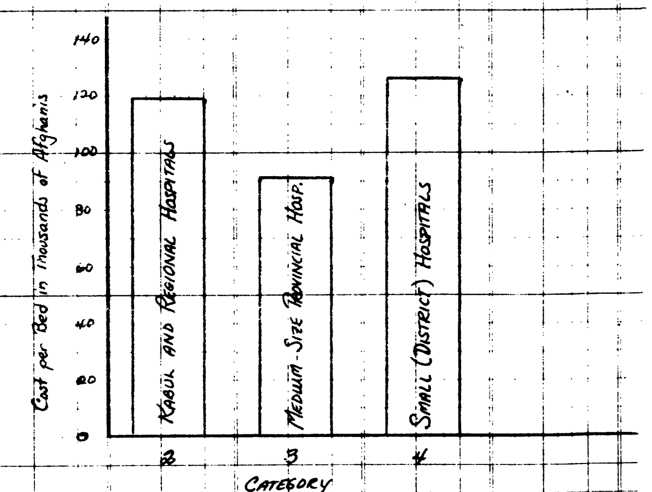
(1) This total reflects the government pay raise that was announced in March 1976, while MoPH contributions listed by hospital category for 1355 do not, since no breakdown of the effect of this pay raise was available by hospital

(2) From 1356-1361 The average MoPH Contribution per bed for that particular year was used to estimate the MoPH Contribution for each category

(3) Overhead Calculations based on Central Organization Budgets

	1355	1356	% Applied to Curative
Nursing Dept.	931	1003	80
ANM School	2076	7008	22
Pathology Dept	1414	1597	25
Central Labs	2797	5552	25
Dental Clinic	4211	6408	0
X-Ray Dept.	5175	7233	25
NM Sch. Nangrahar	1940	3083	80
Male Nursing Sch.		879	80
Herat Nursing Sch		1241	80
Kandahar Nursing Sch		1241	80
Total	18544	35245	
Presidency	6227. 915	33588	89.6

50% of the overhead was applied to categories on the basis of their proportion of the total budget; 50% on the basis of the proportion of the number of the hospitals in the category.



Appendix 7 - Manpower Analysis

Manpower Projections - 1355-1361

To realistically attempt the achievement of the seven year plan, sufficient manpower must be available for each category of health worker. Projected manpower needs were gathered from the seven year plans for each program. Where no needs were specified, estimates were made for each year on the basis of the present ratio of manpower to program output. Total personnel requirements were then calculated for each category of worker.

Estimates were made of manpower production from the number of new personnel completing their training for each year 1355-61, in each category.

In computing manpower needs in each year the following assumptions were made:

1. Five percent of workers in each category leave their employment each year.
2. All graduates on completing their training immediately become available for employment by the MOPH.
3. The same proportion of hospital workers to hospital beds is maintained through 1361.

Unfortunately the data relating to current actual employment and of manpower production were difficult to obtain, and in fact were exceeded in their inconsistency only by certain kinds of health output data which are much more difficult to obtain in general. Frequently figures from different sources for numbers of present employees in one institution differed by as much as 100%.

TABLE M-1

HEALTH MANPOWER PROJECTIONS - DOCTORS

Year	Projected Requirements				Projected Supply	Difference
	BHS	Hospital	Others	Total		
1355	115	433	83	631	584	- 47 *
1356	150	501	83	734	685	- 49 *
1357	165	573	95	833	836	3
1358	183	631	104	918	944	26
1359	192	644	106	942	1102	160
1360	201	685	107	993	1267	274
1361	211	689	109	1009	1433	424

TABLE M-2

HEALTH MANPOWER PROJECTIONS - NURSES

YEAR	PROJECTED REQUIREMENTS				PROJECTED SUPPLY	DIFFERENCE
	BHS	HOSPITAL	OTHERS	TOTAL		
1355	106	782	37	925	790	- 135*
1356	141	780	42	963	820	- 143*
1357	156	891	44	1091	849	- 242*
1358	174	1002	50	1226	909	- 317*
1359	183	1006	50	1239	991	- 248*
1360	192	1077	50	1319	1046	- 273*
1361	202	1081	50	1333	1064	- 269*

TABLE M-3

HEALTH MANPOWER PROJECTIONS - AUXILIARY NURSE MIDWIFE

Year	Projected Requirements				Projected Supply	Difference
	BHS	Hospital	Others	Total		
1355	110	60	0	170	99	- 71 *
1356	279	73	0	352	163	- 189 *
1357	302	83	0	385	255	- 130 *
1358	338	93	0	431	342	- 89 *
1359	356	93	0	449	425	- 24 *
1360	374	99	0	473	504	31
1361	394	100	0	494	579	85

TABLE M-4

HEALTH MANPOWER PROJECTIONS – LAB TECHS AND/OR ASSISTANT LAB TECHS

Year	Projected Requirements				Projected Supply	Difference
	BHS	Hospital	Others	Total		
1355	76	111	43	230	147	- 83 *
1356	106	68	66	240		
1357	139	78	79	296		
1358	173	88	79	340		
1359	178	89	81	348		
1360	187	96	82	365		
1361	197	96	87	380		

TABLE M-5

HEALTH MANPOWER PROJECTIONS - SANITARIANS

Year	Projected Requirements				Projected Supply	Difference
	BHS	Hospital	Others	Total		
1355	115	62	63	240	289	49
1356	149	163	64	376	282	- 94 *
1357	166	188	92	446	288	- 158 *
1358	185	212	103	500	294	- 206 *
1359	195	213	120	528	299	- 229 *
1360	204	229	117	550	304	- 246 *
1361	224	229	122	575	309	- 266 *

3. Outputs of Present Programs

Direct measures of health status improvement are very difficult to find. In practice, simple measures of health program activity are usually substituted: contacts, visits, immunizations are examples. Appendices 1-6 estimate outputs for each program. They are calculated in part from sample surveys and visits to various institutions. Service data routinely reported to the Ministry of Public Health are still inconsistent.

4. Calculation of Unit Cost/Output Measures

The relation of cost to units of output is an important step in the process of making difficult decisions which establish priorities among programs competing for scarce resources. Unit costs do not eliminate the need for technical judgement on quality or impact of a particular output on health status, but they do provide a common denominator for comparison.

Table 2 summarizes the unit cost estimates for the major programs, and Appendices 1-6 contain the methodology, data sources and assumptions used for the estimates. Note that the unit cost estimates range from less than 20 Afs. for immunization and malaria protection to 1,000 Afs. or more for TB cases treated or hospital discharges.

TABLE [illegible]

HEALTH MANPOWER PROJECTIONS

PHARMACISTS, ASSISTANT PHARMACISTS, COMPOUNDERS, AND ASSISTANT COMPOUNDERS

Year	PROJECTED REQUIREMENTS				Projected Supply	Difference
	BHS	Hospital	Other	Total		
1355	0	87	37	124	150	
1356	1	105	40	146		
1357	1	121	42	164		
1358	1	135	44	180		
1359	1	136	46	183		
1360	1	145	46	192		
1361	1	145	46	192		

TABLE M-7

HEALTH MANPOWER PROJECTIONS - VACCINATORS

Year	Projected Requirements				Projected Supply	Difference
	BHS	Hospital	Others	Total		
1355	285	205	77	567	628	61
1356	419	407	70	896		
1357	454	469	193	1116		
1358	508	530	199	1237		
1359	535	533	199	1267		
1360	562	572	199	1333		
1361	592	572	199	1363		

5. Interpretation and Use of Unit Cost Estimates

It is useful to examine the unit cost estimates in relation to the health problems of particular priority groups:

5.1 Groups 1 & 2 - Infants and Children

Respiratory diseases, diarrhea/dysentery, malnutrition, measles and tetanus are consistently found to be the pre-eminent problems of Afghan children (1-6). Of the major programs, only Immunization and BHS directly and economically attack mortality, and can practically be increased to focus on Infants and Children. Malaria and Water Supply, while having low unit costs (15 and 31 Afs.) are difficult to expand beyond the present pace and cannot be focused on particular groups.

Immunization, because of low unit and total cost, previous experience and trained personnel, and high impact potential for minimizing under five mortality, should be seriously considered for prompt implementation, with or without foreign financial and technical cooperation.

Malnutrition is an outstanding problem among infants and children. At the Child Health Institute most of the medical admissions below five years of age are malnourished. One third of them are seriously malnourished. (Yet the problem is so vast that malnourishment alone is not an indication for admission.) Repeated rural surveys all confirm that more than a third of infants and children under five in rural areas are seriously malnourished. (5,6). In addition to its own heavy burden of responsibility for death and stunted development, malnutrition

TABLE 3

DISTRIBUTION OF PROVINCIAL HOSPITAL INPATIENTS BY

AGE AND SEX-1354

Age Group	Female		Male		Total	
	Number of Inpatients	Percent of Total	Number of Inpatients	Percent of Total	Number of Inpatients	Percent of Total
<1	0	0	0	0	0	0
1-4	21	1	87	3	108	4
5-14	143	4	515	16	658	20
15-44	437	14	1418	45	1855	59
>45	106	3	437	14	543	17
Total	707	22	2457	78	3164	100

Data were taken from the 1354 MOPH Discharge Report

Five hospitals were included: Baghlan, Ghazni, Charekar, Takhar and Rostoq

contributes significantly to the high mortality of all other causes except tetanus.

The problem of malnutrition may be partially dealt with through the BHS for the 25% of the population with potential access, but it is such a massive problem that it deserves special consideration for a new national effort.

Three complementary aspects of the problem can be considered:

1) Periodic lack of food in certain areas of the country--a problem for agricultural consideration;
2) Poor food preparation practices. Recent studies (3,5,6) clearly document extensive weaning malnutrition, due largely to delayed introduction of solid foods, often far into the second year. Radical educational efforts are required to change these practices. Innovative radio programs (half of rural women regularly listen to radio (6) could be tried; Basic Health Centers can work on food preparation education, and as Village Health Workers gain in numbers and credibility, they may be able to contribute in a major way to this national educational process.
3) There is a need for research into the nutritional value of indigenous Afghan foods and diets.

With the exception of the Child Health Institute in Kabul, the hospitals give comparatively little attention to infants and young children. Table 3, for example, shows that 3% of provincial hospital discharges were children under five years of age. Data are not available to verify whether they receive

a substantially larger share of hospital outpatient services.

5.2 Group 3 - Pregnant and Post-Partum Women

Problems of pregnancy and family planning are the major concerns of this group (1,4,5,6,7), and only Basic Health Services can have primary impact, aside from Immunization protection against tetanus. Increasing availability of ANMs and the gradual development of female VHWs can increase women's access to health services. Despite a greater burden of general health problems, Table 3 reveals that women receive only one fourth of adult hospital services, while men receive three fourths.

5.3 Group 4 - The Labor Force

The primary health needs consistently expressed by labor force members are medicines, doctors and hospitals in that order (5,6). They are largely a healthy group, and desire ready access to effective, inexpensive drugs and acute hospital care. This group already consumes a disproportionate share of hospital services (48% of population using 68% of hospital services). Much of this disparity is culturally determined. Particularly as quality of care improves, an effort must be made to reduce this disparity.

TABLE 4

ORDINARY BUDGET BREAKDOWN BY PROGRAM

1356 - 1361

(Thousands of Afs - 1 U.S. $ = 46 Afs)

Program	Source of Funds	1356 Amount	1356 % of Total	1357	1358	1359	1360	1361 Amount	1361 % of Total
Immunization	MoPH	7360		13135	28980	30130	32108	32430	
	Foreign Aid	2300		2300	2300	2300	2300	2300	
	Total	9660	1	15435	31280	32430	34408	34730	3
TB/Leprosy	MoPH	6046		7950	9300	9950	10600	11250	
	Foreign Aid	30682		22494	17204	16376	15180	15180	
	Total	36728	6	30444	26504	26326	25780	26430	2
Malaria (1)	Min. of Finance	79500		83475	87649	92031	96633	101464	
	Foreign Aid	49864		52357	54975	57724	60610	63641	
	Total	129364	20	135832	142624	149755	157243	165105	13
Water Supply (1) (2)	Min. of Planning	13050		36443	58113	61985	64326	71189	
	Foreign Aid (3)	37000		103324	170764	175742	182381	201838	
	Total	50050	8	139767	222877	237727	246707	273027	21
Basic Health Services	MoPH	75974		83570	93875	98766	103652	109077	
	Foreign Aid	40664		43917	47430	51224	55332	59748	
	Total	116638	18	127487	141305	149980	158984	168825	13
Hospitals	MoPH	173538		209422	258274	279059	323032	349494	
	Foreign Aid	49665		64465	69326	71213	73308	76165	
	Total	223203	34	273887	327599	350272	396340	425659	33
Technical Support Services (4) (5)	MoPH	24642	4	28116	32079	36602	41762	47649	4
	Foreign Aid								
	Total								
Drugs and Biologicals (6)	Min. of Finance								
	Foreign Aid								
	Total								
Health Manpower (4) (6)	MoPH	14772	2	16855	19230	21942	25035	28565	2
	Foreign Aid								
	Total								
Administration and Other (4)	MoPH	50349		57441	65546	74786	85330	97359	
	Foreign Aid	4149		4734	5401	6163	7032	8023	
	Total	54498	8	62175	70947	80949	92362	105382	8
TOTAL	MoPH	352681	(53)	416489	507284	551235	621519	675824	(53)
	Min. of Finance	79500	(12)	83475	87649	92031	96633	101464	(8)
	Min. of Planning	13050	(2)	36443	58113	61985	64326	71189	(6)
	Foreign Aid	214324	(32)	293591	367400	380742	389111	426895	(33)
	Grand Total	659,555	100	829,998	1,020,446	1,085,993	1,171,589	1,275,372	100

Notes

(1) The ratio of foreign aid to the total budget is assumed to remain the same.

(2) The Water Supply Program is included in the totals, but gets its money from the development Budget

(3) Assumed to grow at 8% per year.

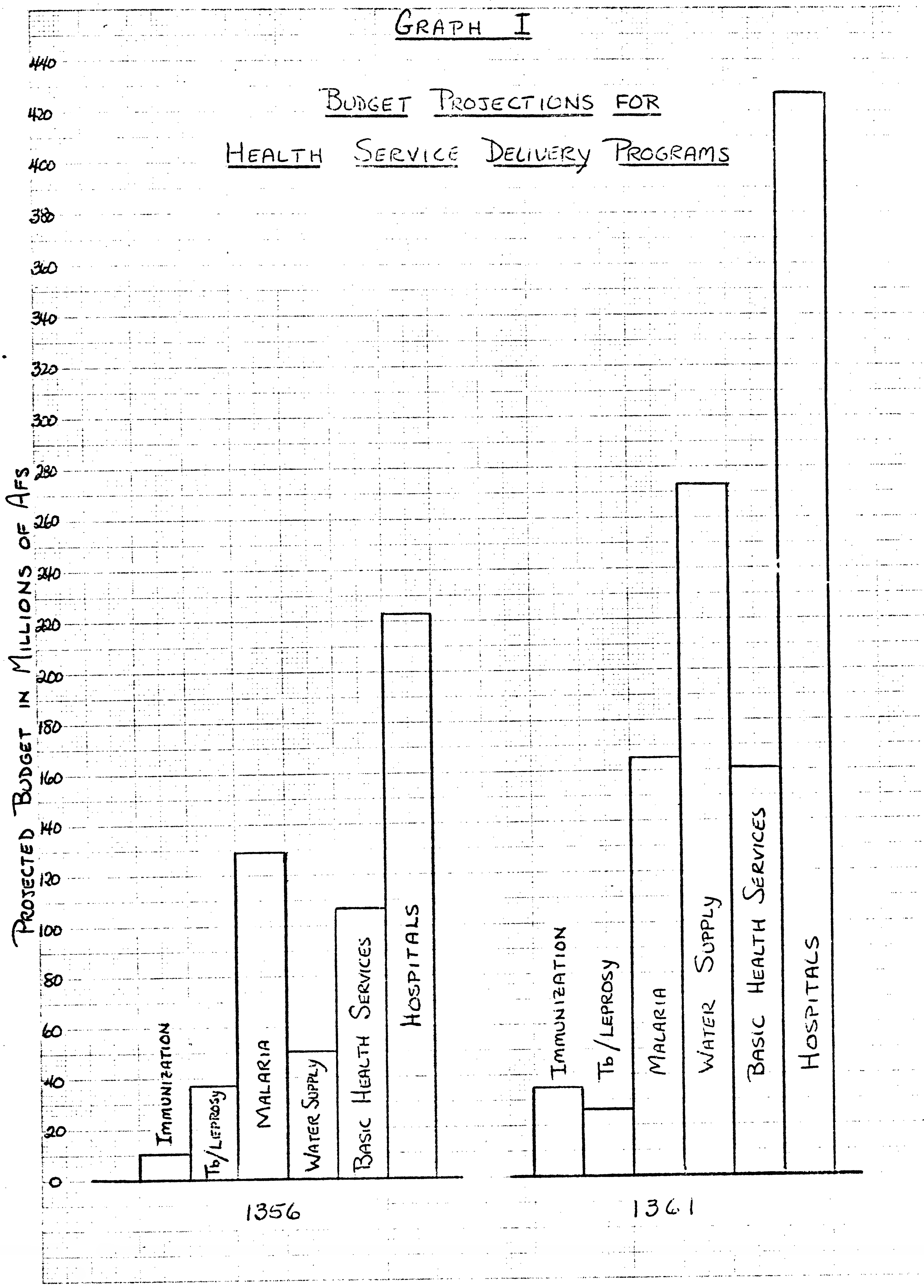
(4) Baseline budgets for each of these programs were calculated from 1355 budgets. For successive years the budgets of these programs were assumed to grow at the average rate of other programs: 14.1% per year. Baselines were calculated as follows:

Program	1355 Program	1355 Budget
Health Manpower	1/2 P.H.I.	8000
	Nang. Nurse Sch.	1940
	ANM Sch.	2076
	Nursing Division	931
	Total	12947
Tech. Sup. Serv.	1/2 P.H.I.	8000
	Path. Inst.	1414
	Central Labs	2797
	Dental Inst.	4211
	X-Ray Inst.	5175
	Total	21597
Admin. + Other	Administration	26830
	Minister's Office	1147
	Inspection	752
	Coordination	3505
	Central Transport	5667
	Curative Dept.	6227
	Total	44128

(5) No foreign aid estimates available

(6) No budget information collected from API. Budget will be separate from MoPH budget.

12-183



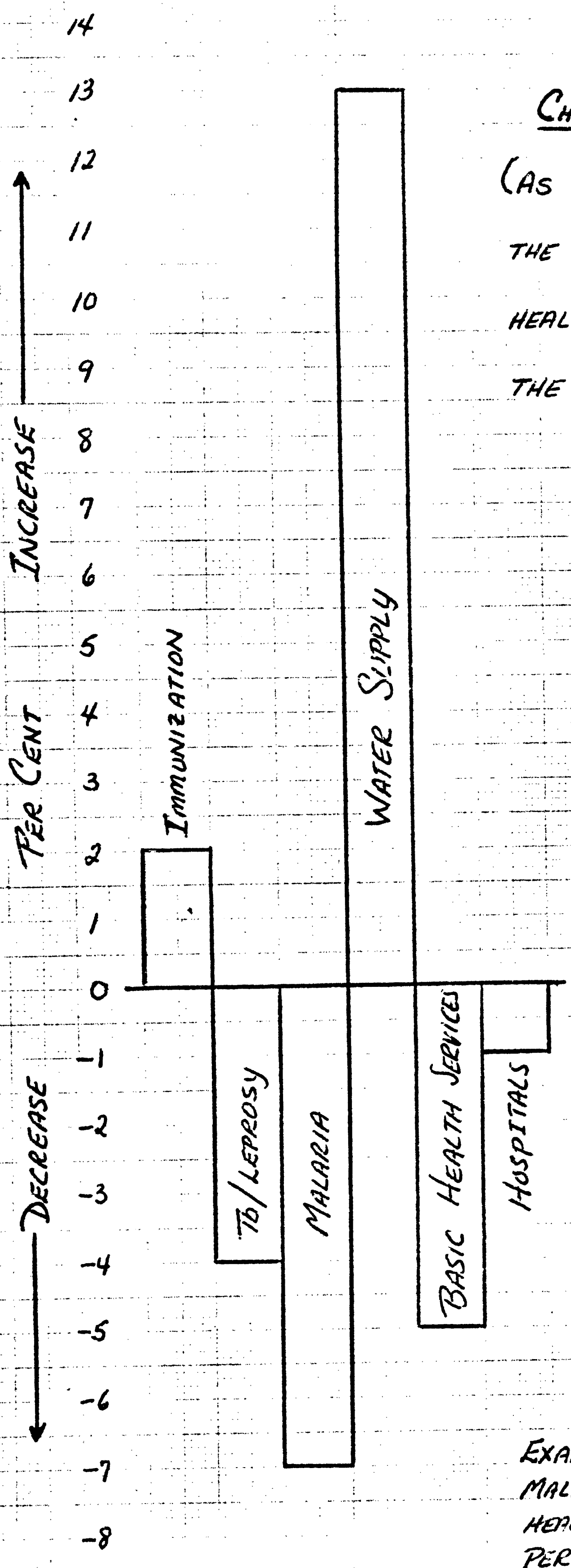
10 Millimeters to the Centimeter

GRAPH IA

1356 – 1361

CHANGING MoPH PRIORITIES

(AS INDICATED BY CHANGES IN THE PER CENT OF THE TOTAL HEALTH BUDGET ALLOCATED TO THE SERVICE PROGRAMS.)



EXAMPLE: THE SHARE OF THE MALARIA PROGRAM IN THE TOTAL HEALTH BUDGET DECRASES BY 7 PER CENT FROM 1356 – 1361.

6. Cost of Future Services

The costs of program expansion as outlined in the six service programs of the Seven Year Plan have been estimated in Table 4. These estimates are based on the most recently available drafts from the respective planning committees. The data sources are noted in each table, and Appendices 1-6 provide the estimation procedure and assumptions employed.

6.1 Comparison of Projected Expenditure with Priority Population Groups

Calculation of the proportion of program investment directed at each Priority Group (as in Table 1) by the end of the plan period is also noted in Table 4. With the current mix of programs, there is very little change in the imbalance between needs of young children and labor force investment. Graph I shows the change in Ministry of Public Health expenditures over the plan period; Graph IA shows the changes in percentage share of the overall budget. Note that by the end of the plan, Water Supply takes 13% more of the total Ministry of Public Health budget, and Immunization 2% more. On the other hand, TB, Malaria, Basic Health Services and Hospitals get 4%, 7%, 4% and 1% respectively.

6.2 Summary Comments on the Contribution of Each Program

1. Immunization - Investment in immunization and its gradual inclusion in Basic Health Services is clearly the most cost-effective program currently being discussed. The unit cost is low, the technology is known, the staff are available, and the impact is directly focused on the Priority Groups in need.

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Republic of Afghanistan

Financial Analysis of Health Programs

26 January, 1977

Preface

The founding of the New Republic has brought increased attention to provision of more equitable access to social services, including health. In attempting to use the available limited resources of the Government of Afghanistan and the people themselves more effectively, the Ministry of Public Health has been exploring the practical limits of existing health programs, such as the Hospital, Malaria and Basic Health Center programs. Additional initiatives to provide the presently underserved majority of Afghans with access to health care, such as Expanded Immunization, Village Health Workers, and Generic Drug Procurement are under development. This Financial Analysis, a product of the Ministry of Public Health and consultant efforts, particularly Drs. Gharwal, Roashan, and Wahabzadha, under the guidance of the Minister, Prof. Dr. A. Omar, is a first attempt to examine the costs and outputs of various Ministry of Public Health programs, with the objective of improving the future balance of health activities to serve the priority needs of the Afghan people.

SUMMARY

The stated priorities of the Afghan National Health Plan (ANHP) are access to health care for infants, children, pregnant and post-partum women and the labor force.

The planning process now underway outlines the programs which will be combined as the ANHP to serve these priority populations.

The Financial Analysis follows the outline of the planning process, looking at the costs and outputs of each program, to assist in policy decisions on allocation of limited resources among alternative programs.

Individual program plans are analyzed to estimate costs and outputs of units of service, such as immunizations and patient discharge from hospitals. The sum of all program investment is then compared with each priority group, their proportion to the population, and the proportion of total deaths the group suffers as an indicator of their health problems.

Major findings of this analysis include:

1) An imbalance between resources devoted to infants (6% of total investment) and their total mortality (40% of all deaths).

2) A trend in distribution of health resources over the seven year plan period in which water supply activities increase from 8 to 21% of total expenditures while Basic Health Services decreases from 18 to 13%, Malaria decreases from 20 to 13% and Hospitals remain about the same (34%).

3) Unit costs for each program, which when combined with technical judgement, can be used to consider alternative patterns of health services improvement within the limits of available resources.

Examples include:

a) Emphasis on Immunization and Basic Health Services as the most economical and effective avenues for the improvement of child and maternal health.

b) Alignment of the TB/Leprosy plan to exploit the developing regional hospitals Rank 1 Zonal Training Centers, and minimize the expensive current cost per treated case.

c) Alternative hospital development plans which allow consideration of quality, utilization and access in this most expensive of all Ministry of Public Health programs.

4) An improved fee-for-service program for those who can pay is an essential change in the hospital system if there is to be any realistic prospect of improving quality of care and retaining qualified professional staff. The Ministry of Finance could return a percentage of fees collected, to be divided between special hospital needs and a pool of incentive payments for the doctors, senior nurses, lab technicians and administrators.

5) Tentative analysis of available projected manpower suggests severe shortages of nurses, sanitarians, and management skills, sufficient to inhibit presently projected Ministry of Public Health programs.

6) A carefully constructed policy, and cautiously implemented program on drug procurement, distribution and education can be the most cost effective program presently available to the Ministry of Public Health to improve access to health care for both rural and urban Afghans.

7) Great progress is beginning and much more is possible. However, the most significant limits on Ministry of Public Health plans are probably not financial but personnel and management constraints.

Choices must be made among programs to use the limited personnel effectively. Providing adequate or excessive financial support, without clear assignment of priority, can only result in unrealized plans, unexpended funds and disillusionment.